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SPORTS CAR INTERNATIONAL

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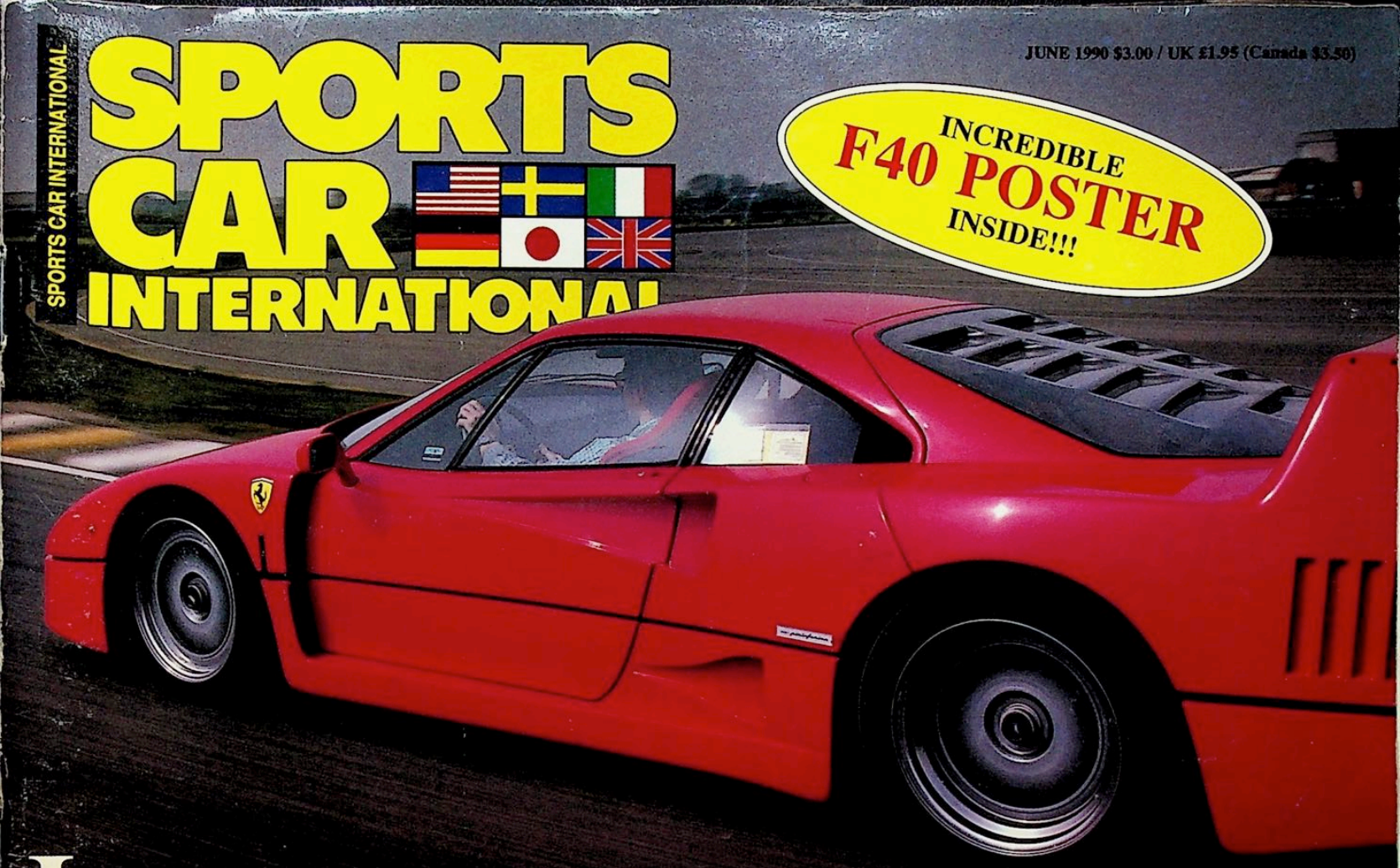
INCREDIBLE F40 POSTER INSIDE!!!



ITALY'S BEST SUPERCARS BACK TO BACK

COUNTACH! DIABLO! FERRARI F40!

WIN!!! *Consulier Redesign Contest (SEE PAGE 89)*

- *Mariah RX-7: 300 hp GTU Street Car*
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- *Track Test: Everyman's Ferrari, MR2 Turbo*
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With 156 horsepower, the 24-valve V6 Lexus ES 250 can hold its own against most other sports sedans. But what makes the ES 250 a truly potent force is the host of power features pictured at right.

The New Lexus ES 250 May Be The Most Powerful Sports Sedan Ever Built.

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Power. It's what separates the ordinary from the extraordinary.

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THE ES 250

ES 250 not just a sports sedan. But the luxury sedan of sports sedans.

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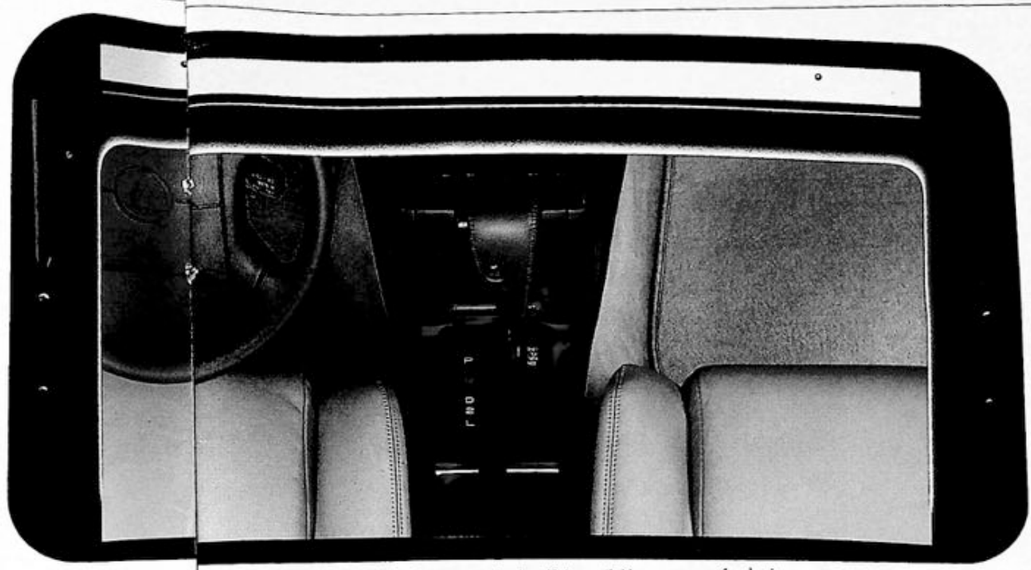
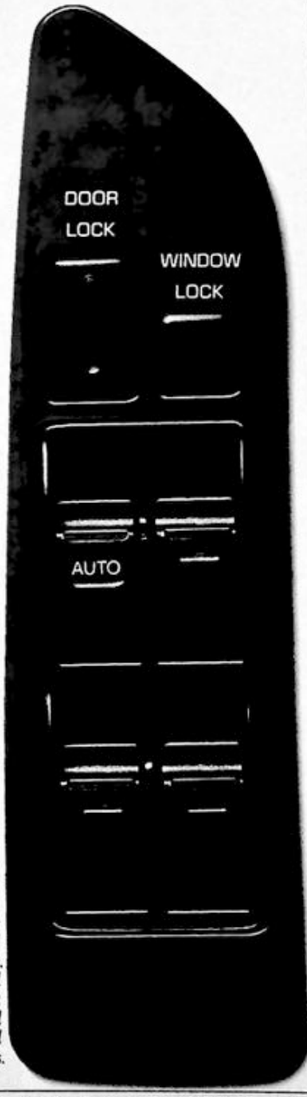


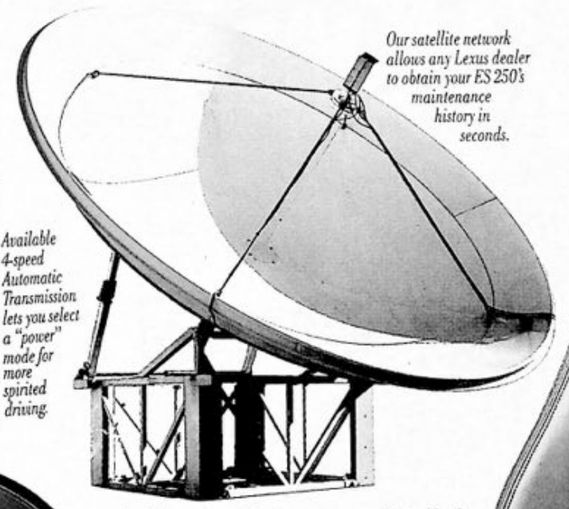
Want to open up an ES 250 on your favorite stretch of road? An available power sunroof makes it easy.

Power mirrors for both the right- and left-hand sides are standard.

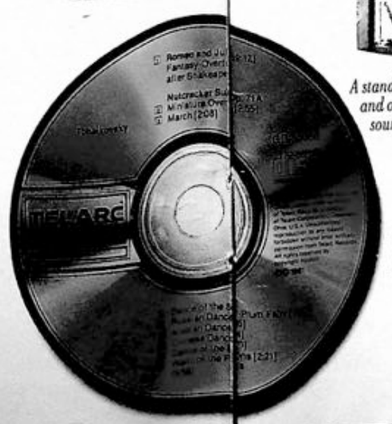


Closing up your ES 250 is easy, too. With standard power windows and power door locks. And a standard theft-deterrent system is designed to keep it closed to intruders.

Available 4-speed Automatic Transmission lets you select a "power" mode for more spirited driving.



Our satellite network allows any Lexus dealer to obtain your ES 250's maintenance history in seconds.



A standard six-speaker audio system and optional CD player punch out sounds both rich and powerful.

Optional leather, power adjustable driver's seat allows you to find an ideal seating position.

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June, 1990

DEPARTMENTS

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Photos by Art ...

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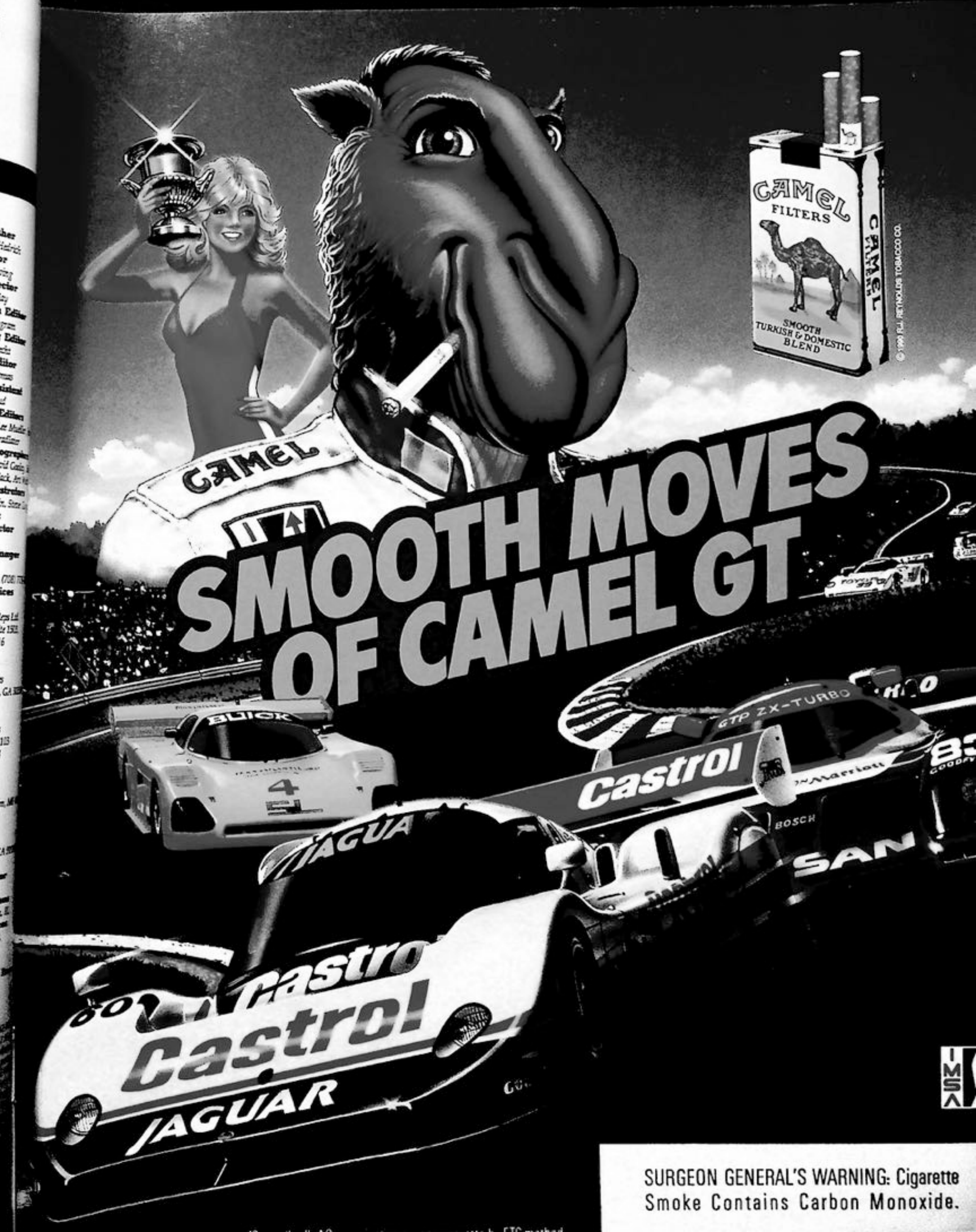
Sports Car International (ISSN ...) Volume 6, No. 6 is published monthly for ... year by Continental Web Press, 1430 E. ... Drive, Itasca, Illinois 60143. Second-Class ... paid at Itasca Post Office, Itasca, Illinois, ... Copyright 1988 by Sports Car International ... rights reserved. **Postmaster:** Send address ... to Sports Car International, P.O. Box 3... Illinois, 60143-9987. **Permissions:** ... from this publication may be reproduced ... written permission from the publisher. ... **Items:** All contributions should be ... 3901 Westerly Place, Suite 120, Newport ... 92660. They must be accompanied by ... and we assume no responsibility for ... thereto. **Subscription Services:** ... correspondence should be addressed to ...



"We decided that a track test of Ferrari's finest would nicely complement Ms. Ferrero's story on the Diablo and Countach"

ROADSHOW

The first time I saw a Consulier GTP, I thought it was just some tube-frame kit car on which someone had lavished plenty of money for prep and paintwork. The finish detail was really high, but its styling was in the same league with the Myer's Manx dune buggy. Some surfaces were nice, but the shape didn't look like the product of a major studio. It was truly unattractive. Only later did I discover that despite its looks and Chrysler driveline, the Consulier is a technically advanced and well-engineered sports car. It has a full composite monocoque, for Christ's sake.

The Consulier GTP may not have the prettiest face in the world, but Rich Taylor, who seems only to work so he can afford to play with race cars, says it is a fine piece of equipment. He drove one at the Nelson Ledge's 24-Hour showroom stock event and found it a responsive race car. On the street, it really impressed. Like me, Rich thought it was an eyesore. Which is why he asked if an SCI-sponsored redesign contest for the Consulier could be arranged. The boss in Chicago gave his okay for a $1,000 prize, and Consulier Industries matched it.

Our little contest is fairly simple. If you think you can design a car body — or even if you work at a styling studio and need the extra bucks — then get your ink pens and scratch out front, side, rear, and plan view renderings. Pack 'em up and send them to SCI. We'll gather together all the art work and have a look. Rich and I will be involved in the judging (hey, it was his idea and I went along with it). Warren Mosler at Consulier will have a say, along with his engineers and probably the entire Consulier staff. And if he completes his design project for a world renown sports car maker in time and gets himself back home, our Design Editor Freeman Thomas will take part. Of course, the Fed Ex lady with the great legs and anyone else who strays in might express an opinion worthy of consideration. After a winner is named and the prize money is sent out, the rest is up to Consulier Industries and you. If they choose to follow through, we'll be the first to show the resulting car.

This month's issue also sees the first appearance of our new Italian correspondent, Graziella Diana Ferrero. Photographer Art Webb spotted her at a vintage event in Italy some time ago and pocketed her address and number. Her tastes run to Lancias and Ferraris, and anything with a Zagato body.

For her first story, Diana covers the new and old of Sant' Agata: the 25th Anniversary Countach and the new Diablo. Former world rally champ and Lamborghini PR man Sandro Munari brought the cars together for us and then gave a few high-speed driving lessons.

Ms. Ferrero's articles will be appearing regularly; her presence in Italy opens up great possibilities. Next month, if all goes to plan, you'll see her profile of Lorenzo Bandini in our black and white gallery of heroes.

And at long last, an F40 track test, as so many of you have requested. We decided that a track test of Ferrari's finest would nicely complement Ms. Ferrero's story on the Diablo and Countach. Kevin Blick got this tough assignment, mainly because he knows Fiorano, having driven the 348tb there only a few months ago. For me, this test finally puts to rest the bad old days of a few years ago, when we couldn't put together much of a magazine, let alone an F40 test.

And as promised last month, this issue sees the debut of a new road test section, "25 and Under," run by the infamous Mike Knepper. Knepper will drive, inspect, and generally flog the living daylights out of an array of affordable performance cars. Over the next few months, Knepper should have many such cars arrive in his driveway

CORRESPONDENCE

"Detroit's failure is not the fault of American-trained engineers. Americans work at companies all over the world. And the guys in Detroit are as good as any you'll find in Weissach or Tokyo. The problem is with management, and our culture"

CONVERTIBLES

First, let me congratulate you on a wonderful magazine. The writing, photography, and article selection are unparalleled in your field. From reading SCI, I have developed a deep fondness for vintage and classic racing cars and the men who drove them.

Hopefully you can define the terms used to describe open car bodies. Please explain the differences between Cabriolets, Convertibles, Speedsters, and Spyders. Thanks. Keep up the good work.

Scott Bruno
Plainsboro, NJ

Cabriolet is the German term for convertible. Spyder, or spider, is the Italian term for a two seat convertible. The term Speedster is most readily identified with the Porsche 356 Speedster, though other cars also carried this designation (Auburn, Model T, etc.). Speedsters have cut-down windscreens, side curtains rather than roll-up windows, and a top that completely detaches from the bodywork. Americans tend to call such cars roadsters, as do the English. By American definition, a convertible's top mechanism remains connected to the bodywork when down. The English call such a car a drophead coupe. In any language or configuration, they mean open-air driving.

PROST

I always enjoy your profiles on racing drivers, so I was happy to see Joe Saward's piece on world champion Alain Prost. After reading it, however, I couldn't help feeling that all this discussion of Prost somehow being an unworthy champion this past season, because Senna was faster, is irrelevant.

Wasn't Mansell faster that Piquet in 1987? What about Prost and Lauda in 1984, Villeneuve and Scheckter in 1979, or Peterson and Andretti in 1978? Championships don't always go to the swiftest in any form of auto racing. Neither Al Unser nor Darrell Waltrip were the fastest drivers in their respective series during 1985, yet both ended the season as champions. Alain Prost deserves the world championship. After all, according to the rules, he earned it.

All in all, your February issue was one of your finest efforts to date and I look forward to some great reading throughout the year. What would make it perfect is a profile of Bernie Ecclestone's favorite driver, Carlos Pace. I've tried for years to dig up biographical information on this Brazilian Grand Prix winner. Why don't you help me out and give your other readers a treat in the process.

Andy Glaess
Northglenn, CO

RACING NEWS

I just wanted to let you know that I look forward to your magazine each month and enjoy it immensely. I have noticed some negative reader comments concerning the physical dimensions of the magazine. Please don't change it. By using the format to more advantageously display photographs, you set SCI apart from the mass of other automotive magazines.

However, I do have a couple of comments. I would like to see increased competition coverage. By this I mean coverage of the different major series (CART, IMSA, NASCAR, Group C, F1, etc.) that provides timely, insightful articles analyzing not only all the races, but the people, factories, teams, machines, and politics. Unfortunately, there isn't an English language magazine that really provides the depth I would like. *On Track* is timely, but the production quality of the magazine is terrible. *AutoWeek* is brief, with mediocre production quality and little color. When *Road & Track*'s coverage is finely published, the races have passed from being newsworthy to ancient history. I read a number of the British magazines, but they too are not great. *Autosport* is too expensive and the majority of the photographs are poorly reproduced. *Motor Sport* probably provides the best value for the money with lots of color and good critical reports; unfortunately, it isn't widely available.

One last request that will probably be a lot easier to fill. When are you going to have binders available to hold my growing collection of *Sports Car International*?

William E. Wagenblatt
Portland, OR

Autosport and Motor Sport are probably your best bets. Speed Sport News is good also. The only way to turn around race results quickly and economically is by producing a magazine with rough edges or a tabloid. Monthly magazines take too much time to produce, which is why R&T's reports are fossilized by the time they reach you. Also, the lack of major success enjoyed by racing publications in this country means that few people would support a slick weekly racing magazine. Italians and English are crazy for racing. They therefore have such magazines. Unlike you, most Americans care more about roundball sports played by surly drug abusers. We provide our "Results & Rumors" column as a means of following major motorsports series. Try ESPN for up-to-date coverage also.

MUSCLE CARS

I have a few questions for you. First, in the article entitled "Fly Weight" in your February issue, you mention a record called "The Supercar." Do you have any information on how or where to obtain one? Second, have you ever considered doing a section on muscle cars? And finally, unlike the reader who doesn't buy your magazine because of its dimensions, I just got a subscription and I think it's great. Keep up the great work!

Derek Myers
Issaquah, WA

To find the record in question, you'll have to scrounge through automobile paraphernalia shops around the world. We don't know of anyone who has a stockpile for sale. Try Hemmings Motor News, *or the Hershey, Pennsylvania auto swap meet. As for muscle cars, the answer is no.* Hot Rod, Car Craft, *and a dozen other magazines do a fine job of covering these cars. We cover high-performance sports cars and sports sedans in the European idiom.*

LETHAL TOY

RE: February 1990 issue of *Sports Car International*, "Lethal Toy," page 30. Otis Chandler suggested he may race his 917K Porsche at Monterey this year. For heaven's sake, man, please let your readers know the date of the Monterey Vintage Race as soon as possible.

Oh yes, the acceleration numbers on the 917K make my mouth water. I can't wait to see, hear, and absorb all the sights and sounds this super racing car must surely produce.

Greg Schellhase
Chambersburg, PA

While reading the February issue of what you have transformed into an outstanding magazine, I was enthralled by the photography of the Porsche 917. I would very much like to secure any photos I could. Your assistance would be greatly appreciated. Also concerning the 917, do you know if "LeMans" with Steve McQueen is out on video yet?

David McMullen
McGuire AFB, NJ

The Monterey Historics take place the weekend of August 18-19. However, Anglo-American hybrids like Allards are apparently the featured marques this year. We haven't heard that "LeMans" is out on videotape. You'll have to dub a late-night movie presentation to get it.

RAHAL

Until last month, I was subscribing to another "automobile" magazine. I then purchased a copy of SCI. Upon discovering the Bobby Rahal column and the "In Miniature" section, I immediately sent my subscription in. I have been going to Mid–Ohio for 14 years and have watched Mr. Rahal win in IROC, IMSA, Can-Am, and CART. Mr. Rahal has always been pleasant and cordial to his fans and recognizes their support. I also started a scale car collection that consists of over a dozen Countaches and various other cars. Your excellent photography and user-friendly articles only enhance and reinforce the concourse performance of *Sports Car International*.

Greg Francis
Rootstown, OH

DETROIT

I must compliment your outstanding editorial content and quality. SCI is now my only automotive monthly, complementing *AutoWeek* and *On Track*. A comparison of your Miata evaluation to that of Mr. Davis really clinched the decision.

I lament that more American achievements don't qualify for SCI coverage, but that's hardly your fault. Even the Corvette now has German ABS, shocks, and transmission, Australian brakes, and Japanese A/C and starter. My fading dream is that Detroit's beancounters will wise up while their corporations still have the engineering resources to do a Ford MN34 or Dodge Viper; every part that gets outsourced erodes that capability.

But more likely the nineties will see the Japanese dominate even the highest performance segment, wresting that lead away from Europe. At least I can look forward to *Sports Car International* reporting on it objectively.

Milt Wilcox
Saratoga, CA

Detroit's failure is not the fault of American-trained engineers. American engineers work at companies all over the world. And the guys in Detroit are as good as any you'll find in Weissach or Tokyo. The problem is with management, and our culture. First, we are all so ready to sue a manufacturer that we discourage people who might invent new industries or improvements on current products. And the sort of people who build, design, and create are not held up as heroes any more; they are portrayed as dweebs who wear pocket protectors and who cannot get a date on Saturday night. A young, struggling Henry Ford couldn't buy a date in the nineties. Lawyers, doctors, and crazy journalists are needed in any civilized society. But they cannot be supported unless we as a people build something. It seems that only foreigners attend MIT these days, and that does nothing for the US. If Red Poling, Lido, and Roger Smith would donate a small portion of their exorbitant salaries and their usually huge corporate profits to a trust fund for engineering and science students, within a decade or so they might have a new, strong crop of men and women who could carry the US industry into the 21st century. If not, the old engineers will die off and we'll just buy goods from the Japanese. Very sad.

STRATOS

Thank you for a great year of reading and gawking! I'm not a car magazine fanatic, but I subscribe to one — yours! Thanks again.

If I may offer a suggestion for an article, here goes. Does anyone remember the Lancia Stratos? I come across hearsay of greatness, but not much in print. If you're not too busy, my birthday is in July.

Mark Perekukat
Metro–Glopolis, VT

The Stratos was one of the most successful rally cars of the seventies. An English company makes a replica of the car, but it uses Fiat mechanicals unavailable in the US. R&T's Exotic Cars *featured a brief story on the Stratos, but it was by no means definitive. We'll work on a story.*

LOTUS

After purchasing your magazine from a local newsstand, I was impressed by your coverage and excellent photography. Enclosed is my first year's subscription. I own a 1973 Lotus Europa TC, so your feature section on older sports cars is very interesting to me. Perhaps you could do a feature on the Europa. I did like the articles on the new Elan, followed by the one on the old Elan. We Lotus owners are a dedicated lot. Keep up the high quality photos, good layout, and interesting articles in your magazine.

As mentioned by other readers, I also feel that $8 is too much for back issues. There are several I would like to have, but at that price I must defer.

Linze Brockmeyer
St. Ignatius, MT

We featured a Lotus Europa in our December 1986 issue, but a new story might be needed. We'll look into it.

SAID AND DONE

I have enjoyed your magazine, especially the story on the Ferrari 348tb. There were about 12 pages of story and photographs of the 348tb. Then there were the stories of the old and new Lotus Elans. Some of my favorite dream cars haven't been in SCI. Are you going to write about the F40 in a future issue? My other favorites are the Porsche 959, Jaguar XJ–220, Lamborghini Diablo, BMW 850i, and maybe the Lamborghini Jalpa.

Sang S. Cun
Philadelphia, PA

Porsche 959 Speedster, February 1990. BMW 850i, November 1989. Lamborghini Diablo, April 1990, June 1990. Ferrari F40-LM, March 1990. Ferrari F40, June 1990. Jaguar XJ-220, not yet in production. Lamborghini Jalpa, no longer in production, covered in March 1988. **SCI**

FASTER LINE

By Bobby Rahal
Illustration By Dennis Simon

I'm going to climb on my soapbox this month. The trigger for my platform is Scott Pruett's accident while testing at West Palm Beach in March. Scott broke both knees, both heels, and an ankle in the accident and it raises questions about the double-standard we have accepted regarding safety.

The drivers in Indy cars have tried to suggest improved safety standards at all the circuits we race on. I have to say CART has been fairly supportive of our requests and most of the tracks we race on have made substantial improvements in recent years. Yet we continue to test at tracks that are far below these standards. Because of weather and geographical considerations and because of driver's schools that take away most of the testing time as some circuits, we go testing at places that have no minimum standards other than to meet whatever inadequate insurance requirements might be in force. Consequently, we're out there testing in the winter months at places that have few if any corner workers and totally inexperienced emergency crews. If you have a problem, it can be a big one.

> *"There is no way an accident like Scott Pruett's should have occurred the way it did after all the years of talking about safety. For him to then spend an hour and a half in the car while they were trying to get him out of it is totally unacceptable"*

I've suggested to CART — and technical operations director Kirk Russell has taken the bit between his teeth on this one — that like NASCAR we allow testing only on designated occasions sanctioned by CART. These test sessions would take place only at CART–sanctioned tracks, with the Harton Medical Unit and CART's safety team in attendance. I believe there are a number of good reasons for embracing this idea; reasons like safety, cost control, and the promotion of Indy car racing.

An organized, restricted test schedule open to all CART teams would achieve a number of ends. First of all, it would save the owners money. The less you test, the less money you spend and a specified number of test days would put an effective cap on overblown test programs. Someone might say the wealthiest teams will only spend more time in the wind tunnel. That's true, but wind tunnel time is a lot less expensive than putting 10 or 15 people and a truck out on the road to go testing.

A second benefit is that CART could use the test days to drum up further interest in the series by inviting the press, just like they do in Formula One. We did that at Laguna Seca this winter and I thought it worked well. If we did it at all our officially-sanctioned test sessions, it would be something akin to NASCAR's race shop tours in and around Charlotte, as Jonathan Ingram describes elsewhere in this issue. A media tour like that is difficult to apply to Indy cars because our shops are all over the country. All over the world, in fact.

A third effect of this proposal is that everyone will have a much clearer idea of where they stand versus their competitors. Rather than hearing stories about one guy doing some phenomenal time when nobody else was around, an organized system would have a built–in judging system that would help build pre–season interest.

Finally, from the safety standpoint we would all be much better off. There is no way an accident like Scott Pruett's should have occurred the way it did after all the years of talking about safety. For him to then spend an hour and a half in the car while they were trying to get him out of it is totally unacceptable. It was fortunate for Scott that he wasn't injured even more seriously, because he might very well have died while they were trying to figure out how to get him out of the car.

I've said it many times, and I'll say it again: when we Indy car drivers ask for safety improvements, it's not just for our sake. It's for every guy out there, whether he's driving a Formula Russell, Formula Ford, Formula Atlantic, or a Modified or Winston cup car. Everyone benefits from improved safety standards. I maintain that our safety standards are in many respects behind those in Europe. This is because requests in this country have never been presented as ultimatums. They've always been presented as suggestions rather than demands, while in Europe people like Bernie Ecclestone have made demands on the tracks in terms of safety. You have to remember that racetrack promoters are generally loath to invest in non–revenue–generating improvements, and guard rails and cement walls don't bring more spectators. That's the bottom line.

I believe the idea of a restricted testing program, officially sanctioned by CART, would go a long way toward improving the safety standards at the tracks we race on as well as helping solve some problems we have in different areas. I think the idea addresses questions of equitable competition, cost control, promotion, and safety and if it can address these issues while making the series more exciting and more marketable, then it must happen.

Another aspect is that CART, without question, has the best safety and medical unit of any racing series in the world, including Formula One and NASCAR. And to not use it as part of our winter testing is a crime. CART's safety crew and the Horton Medical Unit do a tremendous job in dealing with accidents and injuries and they should be utilized in testing just as they are at races. In the present circumstances, with one team testing in Phoenix while another is in Florida and another is in California, it's impossible to use the Horton and safety crews. By eliminating the conflicts and bringing everybody together at one time, we can improve our safety standards and make it more equitable for everyone.

THE NEW RULES

Having now driven one of Galles–Kraco's new Lola T90/00s for the first time in race conditions, there is no question that the reduced ground effects of the new rules make the cars very nervous in traffic. It's the old business. Just because the speeds may have been trimmed a little, it doesn't mean it's any safer. You can crash at any speed, so it's all relative.

The new cars do have less overall stick than last year's cars. That may not be evident in qualifying with one car at a time on the racetrack, but it is noticeable in the race in traffic. Race speeds on ovals this year will be slower than last year. Even so, the cars are much more nervous running in traffic and turbulent air. I hope we haven't taken too much aerodynamic stability out of the equation. But I think the rule changes have worked. I have to agree with some comments Rick Mears made that, contrary to some other comments he's heard during the off–season, it isn't aerodynamics or the lack of downforce that makes a guy crash. It's because somebody keeps his foot on the throttle too long.

People ask why we don't go to flat–bottoms like Formula One. But in Formula One, they don't race on ovals. They race strictly on road courses where you never go anywhere near as fast as on an oval. Nor do they experience the incredible effects of running in traffic at constant high speeds. I think a flat–bottom car on ovals would be a disaster. The closer to the ground you run a modern Indy car, the more adhesion you generate. And as we've reduced downforce through the rules, the ground clearance of the cars has become even smaller. It used to be that you would actually raise the car to try to reduce the downforce in order to get the car down the long straightaway at Pocono for example. But you wouldn't have that luxury with this year's cars because you couldn't afford to bleed off that much suction. With a flat–bottom car, you would run it right on the ground with rock–hard suspension, and on a high–speed oval that would be lunacy.

A GOOD START

In the season–opener at Phoenix, I finished second to Rick Mears. This was my first race with the merged Galles–Kraco team and my first race with a Chevrolet engine. I must say things went tremendously. The car worked well, the engine was fantastic, and our pitstops were as slick as any I've enjoyed. I was able to race hard and steal second place from my teammate Al Unser, Jr. in traffic near the end of the race. It was a good start to the season and I can hardly wait for more. **SCI**

Music Machines

By William Burton
Illustration by Steven Gugerty

"I know you're a car audio brainiac, so could you explain some of the terms you used in that last column?" asked Editor Ewing. We were at the Rusty Pelican restaurant in Newport Beach to discuss how much money I'll get for putting up with him every month. Considering the short, tropical-print skirts the waitresses wear at the Pelican, I wasn't sure I could keep Ewing's feeble mind on the subject. I'm not sure how he finds his way to the office each morning, let alone manages to run the place once he's there.

"Like, what's an azimuth? And what does piezoelectric mean? What does a whizzer do? And what's a baffle?" Editor Ewing seemed doubtful as we looked at our menus. When our Amazon waitress walked up, I knew keeping his attention would be difficult.

"Some of the jargon is weird," I agreed, after Ewing spent five minutes engaged in sophomoric flirting with the Amazon. "But even words like whizzer and baffle have real meanings."

"Okay," Ewing said as his eyes followed a red headed businesswoman walking to her table, "what's a whizzer?"

"A small extrusion usually shaped like a cone," I explained. "It's in the center of a driver, and..."

"The driver is the part of a speaker that moves back and forth to make sound?"

"Yes," I said. "The whizzer goes in the center of the driver, over the dustcap."

"God, redheads are great, huh? So anyway, what do whizzers do?"

"Well, they actually do whiz," I explained. "Not in the liquid sense, but in the gaseous, acoustic sense. They make high-frequency sounds because they are small, while the larger drivers they are mounted in make lower sounds. Smaller things make higher sounds — faster vibrations. Big things make lower sounds — slow vibrations. It's like this. A little VW or Alfa four banger will sound higher than a big, booming V8."

"But why would someone buy a speaker with a whizzer to make highs instead of buying a separate tweeter to make highs?"

"Because a mid-range speaker with a whizzer is cheaper than a separate mid-range and tweeter. You save all the extra parts and wiring and crossover networks," I explained. "The whizzer is a shortcut that helps you get better high–frequency performance from what would otherwise be only a mid-range driver. Also, you may not have space for both a mid and a tweeter, and a speaker with a whizzer will give you mids and highs together.

> "Considering the short, tropical-print skirts the waitresses wear at the Pelican, I wasn't sure I could keep Ewing's feeble mind on the subject. I'm not sure how he finds his way to the office each morning, let alone runs the place once he's there"

"Whizzers tend to be found in less expensive speakers. For a high–end system of separate speakers, you might have tweeters for the highs, mid-ranges for the mids, woofers for the lows, and sub-woofers for the really low frequencies."

"Okay, I think I understand whizzers, but I'd still like to see a picture of one." He looked at the white yachts bobbing in the marina. Then the Amazon was back with our lunch. It's like dealing with an adolescent.

"What about baffle? Does that mean something different in audio, or does it just mean to foil, confuse, and obfuscate?" I'm beginning to wonder about the nature of Ewing's late-night reading material.

"In audio, baffle has a precise meaning," I said. "There are different types of baffles, but they all do the same thing."

"Like, what?"

"Baffles prevent the pressure wave generated by the back of a driver from interfering with the pressure wave generated by the front of a driver," I explained.

"I should have guessed. Can you give me a walk–through on all that?"

"Sure, but we'll have to get into some theory. Remember that sound is changing pressure. If air pressure changes a lot, the sound is loud. If air pressure changes just a bit, the sound is soft. If air pressure changes quickly, the sound is high. If the pressure changes slowly, the sound is low."

"Got it. Sound is changing pressure." "So, a speaker driver makes sound by moving, thus pressurizing air. When it moves forward, the air in front of it is compressed — the molecules move closer together, like air molecules in a cylinder when the piston comes up. Now, when the air in the front of the driver is compressed, the air behind the driver is rarefied, and..."

"Rarefied is the opposite of compressed, right? Rarefied air is thin, with a lot of space between the molecules. Wings on cars and airplanes split air passing near them into two parts, one compressed — under high pressure — and one rarefied — under low pressure."

"That's right," I said. "So, if we have a driver hanging out in the middle of space, moving back and forth like a piston, compressing air on one side and leaving rarefied air on the other side at the same time, what happens?" I looked out at the noonday sun on the water. Ewing seemed to be making eye contact with the businesswoman. This is making my life so difficult.

"Well, the pressurized air will move from one side of the driver to the other side, because the air on the other side will be rarefied," Mark said slowly.

"Right. The driver should be pressurizing the air, but the air leaks from one side of the driver to the other. It's like trying to pump air into a punctured tire."

"So what does a baffle do?" asked Mark, remembering the practical question that had sparked this discussion of acoustic theory.

"The baffle keeps the air on one side of the driver from interfering with the air on the other side of the driver," I said. "It plugs the hole in the tire."

"How?" asked Mark.

"Well, in a few different ways," I admitted. "If your speakers are mounted in your doors, the doors are the baffles. The pressure from the front of the driver comes into the car, and the pressure from the back stays inside the door.

"Another common baffle is the rear deck, or package shelf. If a driver is mounted there, the pressure from its front comes into the car, and the pressure from its rear goes into the trunk.

"The third way is to mount drivers in boxes. Installers design custom boxes called enclosures that keep the back pressure from interfering with the sound coming from the front of the speaker.

"You can also buy drivers already in boxes. Some of these speakers, called sub-woofer boxes, just do low sounds. The box speakers that reproduce all sounds from the lows to the highs are full–range boxes, often called truck boxes because they may be designed to fit behind the seats of pickup trucks."

"So now I know everything about baffles?" asked Mark, after we had both ordered dessert and coffee.

"Well, no," I said. "There is a lot more to know, like why baffles are more important for lows than highs, but let me just mention two more important points. First, the size of the enclosure is extremely important, especially if there is a hole in the box."

"But I thought the whole idea of a baffle is to keep the back wave from screwing up the front wave? If you poke a hole in the enclosure, you've busted the seal of the baffle!"

"Yes, but if your installer makes the right size hole in the right size box with the right driver, the rear wave will actually reinforce the front wave and your speaker will be more efficient," I said. "Speakers with holes are known as ported, vented, or bass–reflex. Computing the size of the box and the dimensions of the hole correctly involves mathematical theories developed by Neville Thiele and Richard Small, and these formulas are known as Thiele/Small parameters. They are even more complicated than turbocharging, aerodynamics, and EPA emissions regulations."

Ewing developed that bunched-up browline everyone had warned me about. "Are boxes with holes more efficient because the back wave isn't wasted, as they are in sealed boxes? If there is no hole in the box, all the sound from the rear of the driver just stays inside the box."

"Right again," I said, putting the sixth packet of Equal into my cappuccino. "And that relates to the second important point, which is the difference between two types of sealed enclosures: infinite–baffle and acoustic suspension."

"What's an infinite–baffle enclosure like? Is it infinitely baffling, like why women talk about commitment after two dinner dates?"

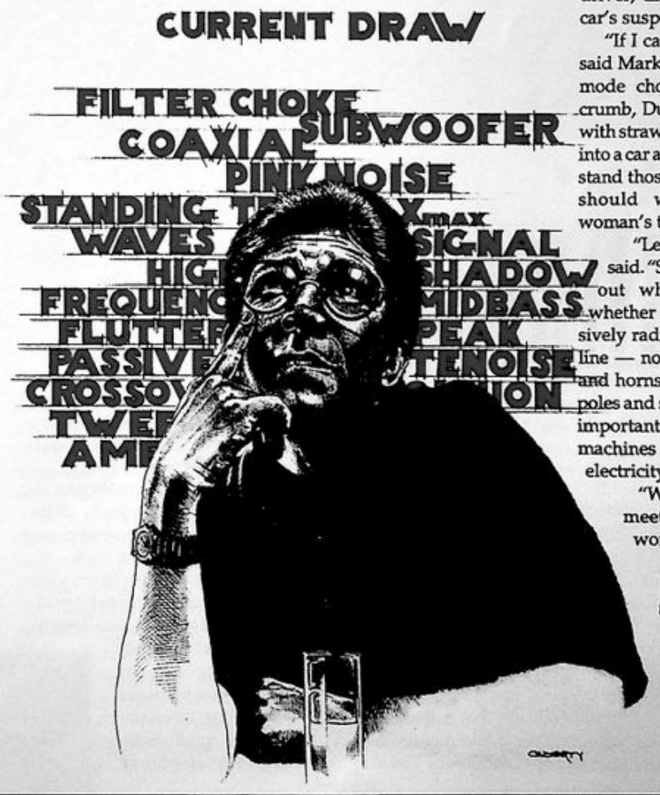
"Well, yes. In an infinite-baffle enclosure, there is so much air behind the driver that the driver can move freely. A driver in a rear deck is considered to be in an infinite-baffle enclosure because there is so much air in the trunk that the driver moves easily. The driver is suspended by the material surrounding its edge, which is called the surround.

"A driver in a small sealed box, on the other hand, has a harder time squeezing that small amount of air. The air in the box acts as the suspension of the driver, like an air spring in a car's suspension."

"If I can remember all this," said Mark, digging into his a la mode chocolate-coated, Oreo-crumb, Dutch-swirl cheesecake with strawberries, "I could walk into a car audio store and understand those terms. I also think I should walk over to that woman's table right now."

"Let's finish this first," I said. "Speakers, with or without whizzers and baffles, whether sealed, ported, passively radiated or transmission line — not to mention ribbons and horns and bi-poles and di-poles and so on — are especially important because they are the machines that turn inaudible electricity into audible music."

"Wow. Will this help me meet a better class of women?"



William Burton, editorial director of Car Audio and Electronics *magazine, has been discussing the theory and products of car audio for about ten years*

SCI

In Miniature

By John Retsek
Photography by David Gooley

Quarter scale does not mean 0.25 in. equals 1.0 ft.-0.0 in., a scale (1/48) that is popular with architects, but not with model car makers. Quarter-scale models are one-fourth the size of the real thing: 3 in. equals 1.0 in. That's a big model to put on your mantel, but to a growing number of radio control racers, it's just the right size for the track.

The quarter-scale cars pictured here are the products of a unique collaboration between Fresno model designer Gary DeLara and full-size speed equipment king Vic Edelbrock. DeLara, a lifetime model builder, has seen his dream projects realized in the high-tech environment of Edelbrock's large plant in Torrance, California. Edelbrock, a model enthusiast, met DeLara at a hobby show and was so impressed with his sprint car design that he decided to help him build and market it.

The Edelbrock-DeLara Performer Sprint Car kit is based on the Gambler, the most popular full-sized Outlaw Sprint. The frame is jig-welded of 0.375-inch 4130 chrome-moly tube by off-road racer Roger Sanderson's Pipeworks Fabricators, which is noted for its tough, full-size Baja racers. It is then finished in black powder coat just like a real high-quality race car frame.

The suspension is also just like the real thing, with a fully adjustable four–bar torsion system, tube shocks, and radius rods. The radius rods feature Heim joints with left- and right-hand threads. The knock off hubs also have left and right threads and, along with the suspension parts, are finished to an exceptionally high level. The spun aluminum alloy wheels are fitted with B&L rubber tires that are available in various sizes and compounds for pavement and dirt. The inboard disc brake is another masterpiece.

The Skellenger Engineering quarter-scale quick-change rear end works, too. It's a nearly perfect quarter-scale version of the famous Hilabrand unit, and a full range of ratios is available.

Yes, that really is a quarter-scale V8 engine, and yes, it works: three horsepower at 10,000 rpm on a 15 percent nitro-methanol blend. It's a 50cc water-cooled four stroke. It sounds like a V8 in the distance when idling. At 10,000 rpm next to your ear, it's like an Offy. Made by Gary Conley, it's an expensive piece, but as production increases the price should drop from $3,000 to approximately $1,700.

The V8-powered cars do not have an approved racing class as yet. The standard engine sold with the Edelbrock-DeLara car is a fully approved air-cooled single made by Kawasaki that kicks out two horsepower at 13,000 rpm on methanol (1.2 horsepower on gasoline). Its humble origins in power gardening equipment make it reliable, and at $225, inexpensive as well. Both engines operate through a centrifugal clutch to a U-jointed driveshaft that is controlled by a DeLara-designed torque arm. There is no transmission. (Real Sprints have in-out gearboxes.)

The wing's the thing in Sprinter bodywork, along with the old-time tail-tank. Body parts are beautifully made, but painting and polishing are at the owner's discretion. Any motorcycle and most good car paint shops could do a fine job on a quarter-scale car, and all those sponsorship decals are available from Autographics of California.

The Performer Sprint is two feet, six inches long and weighs 22 lbs. — that's 11 lbs. per horsepower. A real Sprint car is a hefty 1,400 lbs., but has over 700 horsepower — about two lbs. per horsepower. This is about the only area in which the model is not one-quarter of the real thing. However, racing speeds exceed one-quarter of the real car's potential. This discrepancy is due to the model's lower mass and frontal area. Things happen quickly in quarter-scale racing with speeds of over 40 mph. That's fast for radio control, and DeLara recommends starting with the smaller, less expensive electric-powered R-C cars. ("In Miniature," SCI, May 1989.)

The quarter-scale cars don't crash as often as smaller model racers, though like real Sprinters, things can get rougher in the dirt. DeLara says that crash damage is usually minor, but recommends that extra radius rods and front axles be part of a spares kit. All parts are readily available, so that racers need not tie up too much money in spares.

And on the subject of tying up money, the Performer Sprint Car kit will cost you $1,695. That's complete with everything except radio control, paint, and graphics. Everything needed to race, including spares and a finished car, will total around $2,500. For what you get, it's the best bargain in scale racing.

About the only option that Edelbrock-DeLara offers for the Sprint Car besides the V8 is the quarter-scale driver complete with seat, safety harness, and genuine Nomex Simpson driver's suit with a pair of in-scale Simpson racer's shoes. The creation of Maria Rich-DeLara, the driver is also reputedly equipped with that portion of the male anatomy most important in full-size Sprint Car racing.

In addition to the Sprint Car, Edelbrock-DeLara now offers a quarter-scale Grand National Stocker. The frame is square chrome-moly tube and much like the real thing. The suspension is independent up front, a rigid axle sits at the rear, with adjustable coil springs and weight jacks at each wheel. The quick-change rear end has five gear sets available to suit short track or super speedway events. Power comes from the 22.5cc Kawasaki, but the V8 is a planned option. The alloy wheels have real B&L racing rubber and are bolt-on with three in-scale lug nuts and three locator pins. Lumina or T-Bird bodies are available in Lexan or ABS. The car weighs the legal minimum of 29.5 lbs. The price for the kit is $1,995. It should be noted that the kits for both cars come with complete instructions and are not difficult to assemble.

The Performer Sprint finished third in the national championships in its first year competing against 140 entries from as far away as Italy, Germany, and Sweden. There are over 3,000 quarter-scale racers, with the Stockers being the most popular. Venues are everywhere, but with 30 lb. cars running at speeds above 40 mph, crowd protection and liability insurance are a must. The Stockers run both short track and super speedway events that require pit stops — fuel on board is limited to eight ounces for both the Sprint and Stocker.

DeLara has plans for more quarter-scale cars. We'd suggest Formula One or Indy cars, or a Can-Am type sports racer. The possibilities are exciting, and if V8s are realities, how about V10s and 12s? The cost would be high, but compared to the full-size cars, quarter-scale cars are a bargain — about 1/200th to 1/300th of the cost for a quarter of the size and performance. And you can still put one on your mantel, if you have a really big fireplace.

Keep everything in scale.

SCI

Thanks to Edelbrock-DeLara Corp., 2700 California St., Torrance, CA 90503. 213-781-2222.

ECLIPSE GS TURBO

25 AND UNDER

By Mike Knepper
Photography by Peter MacGillivray

For anyone who suffered through the dark ages of the seventies and early eighties when it was essentially forbidden to mention the "P" word, let alone manufacture a car that possessed performance, these days are great. Everywhere you turn you bump up against performance. You find it in itty-bitty hatchbacks, you find it in small sedans, mid-size sedans, even some big sedans. And you really find it in the new generation of sport coupes that have given the term torque steer new meaning.

Take this Mitsubishi Eclipse GS Turbo. Please. I mean, you should take one if you like to go fast, generally have gobs of automotive fun, impress the girls (or boys), and want to have some money left over after each monthly payment. The base price of the GS Turbo is $14,967 (including destination charges) and that includes all the stuff you really need, like a six-speaker stereo.

Our test car had A/C, power windows and locks, a CD player, and cruise control, which made the total a touch under $17,000. Not to sneeze at, 17 large. But in 1990, with the price of admission to anything with a little bit of motoring interest hovering around $15,000, we're talking something of a bargain here.

There are no fewer than five Eclipsii available for your delectation and delight. The Eclipse and Eclipse GS are perfectly good little runners powered by a 1.8 liter sohc engine that makes 92 horsepower at 5,000 rpm. Extremely adequate, as a teacher of mine used to say. The Eclipse GS DOHC uses a normally aspirated, 16-valve, 2.0 liter four that produces 135 horsepower at 6,000 rpm. More than adequate.

Turbocharge and intercool that engine and you have the GS Turbo; give it four-wheel drive and it becomes the GSX Turbo. Not very adequate, not more than adequate. More like a 190 horsepower case of adequate-extremis.

The GS Turbo has one of the highest smiles-per-mile factors I've come across recently. You smile as you walk toward what is one of the sexiest shapes on the road. You smile as you lower yourself into the cockpit. You smile as you look over the ergonomically excellent instruments and controls. And you non-stop smile as you rocket around the neighborhood, mashing your right foot to the floor with much more frequency than necessary, sort of like "Oh, just one more" in front of a box of Godiva truffles.

The key ingredient in the GS Turbo is horsepower, of course. And torque. Both of which come on in an extremely timely and smooth fashion. The Mitsubishi TDO5H generates 11 psi of boost and is at its maximum torque production of 203 lbs. ft. at just 3,000 rpm. That means not only nearly instant response off the line and up through each of the five gears, but good low-speed flexibility. No need to keep rowing the gearbox back and forth in everyday around-towning.

I mentioned the dreaded torque steer a while back. That's the not-so-neat result of all that full-throttle torque hitting the transaxle in one huge wallop, causing the car to pull to the right. A lot. The solution, obviously, is to feed in the power a little more judiciously at first, then go for it. But, if you know it's coming, and correct as it happens, no problem.

Warning. The GS Turbo has so much horsepower and torque that it is also no problem to light up the right front tire by getting into the power too quickly on right-hand turns. Lots of smoke, lots of noise, lots of attention directed your way.

The GS Turbo has the handling and the brakes to go with the performance potential. The suspension is MacPherson struts, coil springs, and an anti-roll bar in front; a three-link design in the rear with coil springs, a Panhard rod, and an anti-roll bar.

For brakes, the GS uses power assisted 10.4-inch vented discs in front with solid discs of the same diameter at the rear. No ABS option. The discs ride inside 16 x 6-inch alloy wheels fitted with 205/55R16 V-rated radials.

The car is not all looks and horsepower. The suspension works remarkably well despite its straightforward design. This is a car you can flick through the twisties with confidence. No surprises. The power-assisted rack and pinion steering is reasonably quick, the road feel good. Nothing vague about what the front end is doing. Push too hard, and you'll get understeer that is easily corrected by getting out of the throttle a bit. This is a car built for fun, and it delivers.

This is also a car that feels good on. Smallish, everything where it should be. Good visibility. The instruments have large and round analog faces. The tach, on the left, contains the turbo boost gauge. The speedo is on the right with gauges for temp, fuel, and oil pressure in a two-over-one arrangement in the middle. You may or may not like the way the instrument panel angles down on the right. It's a bit disconcerting — because it's unusual — but after awhile it becomes familiar.

You may also have mixed emotions about the shift lever. It's shaped like the joy stick in a fighter plane, and is meant to be gripped vertically, which makes for ham-handed shifts. It may impart the psychological message Mitsubishi is after, but doesn't provide the same feel you get from a traditional ball-like shifter.

Mitsubishi co-operated with Chrysler to design and build this car — also available as a Plymouth Laser and an Eagle Talon — and it was a pairing made in auto enthusiast heaven. If this is any indication of what these two can do together, their next joint effort — the Dodge Stealth/Mitsu 3000 — should be something to reckon with. Until then, take the Eclipse GS Turbo. You'll thank yourself in the morning. SCI

Vehicle: Mitsubishi Eclipse GS turbo

Vehicle Type: front engine, front-wheel drive, 2+2 coupe
Price (as tested): $16,964
Body/Chassis: unit steel construction

ENGINE
Configuration: transversely mounted dohc, 16-valve, turbocharged/intercooled inline four
Displacement: 2.0 liters
Bore/Stroke: 3.35 x 3.46 mm
Horsepower: 190 bhp @ 6,000 rpm
Torque: 203 lbs. ft. @ 3,000 rpm
Fuel System: electronic multi-point fuel injection

TRANSMISSION
Type: 5-speed manual transaxle
Final Drive: 3.56:1

DIMENSIONS AND CAPACITIES
Wheelbase: 97.2 in.
Length: 170.5 in.
Width: 66.5 in.
Height: 51.4 in.
Curb Weight: 2,745 lbs.
Fuel Capacity: 15.9 gal.

STEERING, SUSPENSION, BRAKES
Suspension: F: MacPherson struts, coil springs, anti-roll bar; R: 3-link, coil springs, Panhard rod, anti-roll bar
Steering Type: rack and pinion, power assisted
Brakes: F: 10.4 in. vented discs; R: 10.4 in. discs
Wheels: 6.0 x 16 in. alloy
Tires: 205/55VR-16

PERFORMANCE
0-60: 7.3 sec.
Top speed: 140 mph

"The key ingredient is horsepower, of course. And torque. Both of which come on in an extremely timely and smooth fashion"

ECLIPSE

25 AND UNDER

By Mike Knepper
Photography by Peter MacGillivray

On this side of the pond, France is renown for wine, perfume, fine food, beautiful women, a language only, er, Frenchpersons can speak properly, and assorted monuments, edifices, and etcetera. It is not renown for its automobiles. Which isn't to say a goodly number of Americans don't know of French cars. Renaults have come and gone (and come and gone and come and gone) from these shores. There have been actual Citroen dealerships offering that particularly weird approach to automobiling. Certainly Peugeot has hung in there for the long haul. And although Peugeot is still hanging in there, it has always had to do its hanging-in with the added weight of the Renault/Citroen episodes dragging it down.

No, right-thinking Americans just don't reckon the French can build a good car. Which is why the following will undoubtedly be met with some skepticism in certain quarters. The Peugeot 405 Mi16 is one of the finest cars on sale in the US of A in 1990.

This sucker is fantastic, especially for $20,000. (Actually, it's $20,700.)

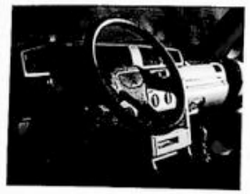
For years, Peugeot dithered about trying to decide what it should sell here, finally determining what it didn't want to sell here were any of the marvelous small machines it sells in the home market, such as the 204, 304, and 404 in their various turbocharged, cabrioleted, hatchbacked, and sedaned personas. Rather, it would stick to the up-market end of the game, leaving the small-car business to the Japanese. Reasonable approach. But Peugeot found it rough sledding with just the 505 to sell. Enter the just-slightly-smaller and a good-bit-less-expensive 405. More contemporary in looks and engineering than the 505, and in all a rather appealing package. The Mi16 is our treat in that package.

Another thing our countrymen don't know about Peugeot is that it regularly kicks tail and takes names on the European rally circuit, including the Paris-Dakar. And don't look now, but who owns the outright record for racing up Pike's Peak? So producing a high-performance version of the 405 is not a departure from style. No way.

In fact, the 16-valve, dohc head perched atop the 1.9 liter four — which is mounted transversely and drives the 405's front wheels — is a derivative of the one used in the twice-world-champion Turbo 16 rally car.

The numbers are as follows: 150 horsepower at 6,400 rpm and 128 lbs. ft. of torque at 5,000 rpm. (In standard form, the engine makes 110 horses at 5,200 rpm, 120 lbs. ft. at 4,250.) The rev limiter is set for 7,500 rpm, which the engine willingly achieves. It drives through a 5-speed box, with fourth and fifth gears overdrive (0.97:1 and 0.76:1, respectively.)

The independent front suspension uses modified MacPherson struts, Peugeot's own eight-valve shocks and a 22mm anti-roll bar. The independent rear uses trailing arms, Peugeot shocks, and a 20mm bar. Steering is power-assisted rack and pinion.



For your 20 large, you also get a full complement of goodies, such as automatic climate control, six-speaker Alpine stereo, remote locking, power windows, height-adjustable steering wheel, cruise, leather upholstery, heated front seats with six-way adjust on the driver's seat, and, to coin a phrase, more.

You also get a car that is put together properly. At least the one I spent a week with was screwed together the right way. And all the interior bits and pieces are nicely designed — except for the face of the climate control system, which looks cheap in its rather luxurious surroundings.

This isn't a big car, but it feels roomy, surprisingly so in the back seats. It's comfortable for big folks front and rear.

But enough reciting from the catalog. It's the driving that counts. The Mi16 has one of the sweetest clutch/transmission pairings I've experienced. Just enough resistance on the clutch, which engages in a smooth, linear motion. If you make a jerky shift in the Mi16, you should have your subscription to this magazine lifted. The shifter slips from gear to gear with a crisp, positive feel, each gate easy to hit. You almost think the lever from slot to slot.

Like most other four-valve twin-cammers, this one is not big on low-end torque, so under a full-throttle getaway, things happen if not slowly — certainly not slowly — then with a good bit less insistence than, say, a turbo Eclipse. However, when the tach needle passes through 4,500 rpm, there is a noticeable rush of power, and the feeling stays with you right up to that governed redline. Did I mention the sound? Beautiful. Very mechanical, very machine-at-work. Not only does having the revs up keep you in the power curve, it makes for some great listening.

Although the torque isn't massive, the engine is flexible enough. As for handling, all the superlatives apply. Tenacious, roll-free, solid. It goes where you point it.

Speaking of the Eclipse turbo, one followed the Mi16 into my driveway the day the Peugeot went away. Nice back to backing. The Eclipse is still one of my favorites, but let's admit it's a visual overstatement that dishes out gobs of power with all the finesse of an irritated rhino. With torque steer. Which is not without its charms. But to sample the Mi16's charms, a driver has to do more than right-foot it and hang on. He has to work a little with the throttle and gearbox. And trust me. The result is worth the effort. SCI

Vehicle: Peugeot 405 Mi16

Vehicle Type: front engine, front-wheel drive, four passenger, four door sedan
Price (as tested): $20,700
Body/Chassis: unit steel construction

ENGINE
Configuration: dohc 16-valve inline four
Displacement: 1.9 liters
Bore/Stroke: 83 x 88 mm
Horsepower: 150 bhp @ 6,400 rpm
Torque: 128 lbs. ft. @ 5,000 rpm
Fuel System: Bosch fuel injection

TRANSMISSION
Type: 5-speed manual transaxle
Final Drive: 4.43

DIMENSIONS AND CAPACITIES
Wheelbase: 105.1 in.
Length: 177.7 in.
Width: 67.6 in.
Height: 55.4 in.
Curb Weight: 2,715 lbs.
Fuel Capacity: 17.2 gal.

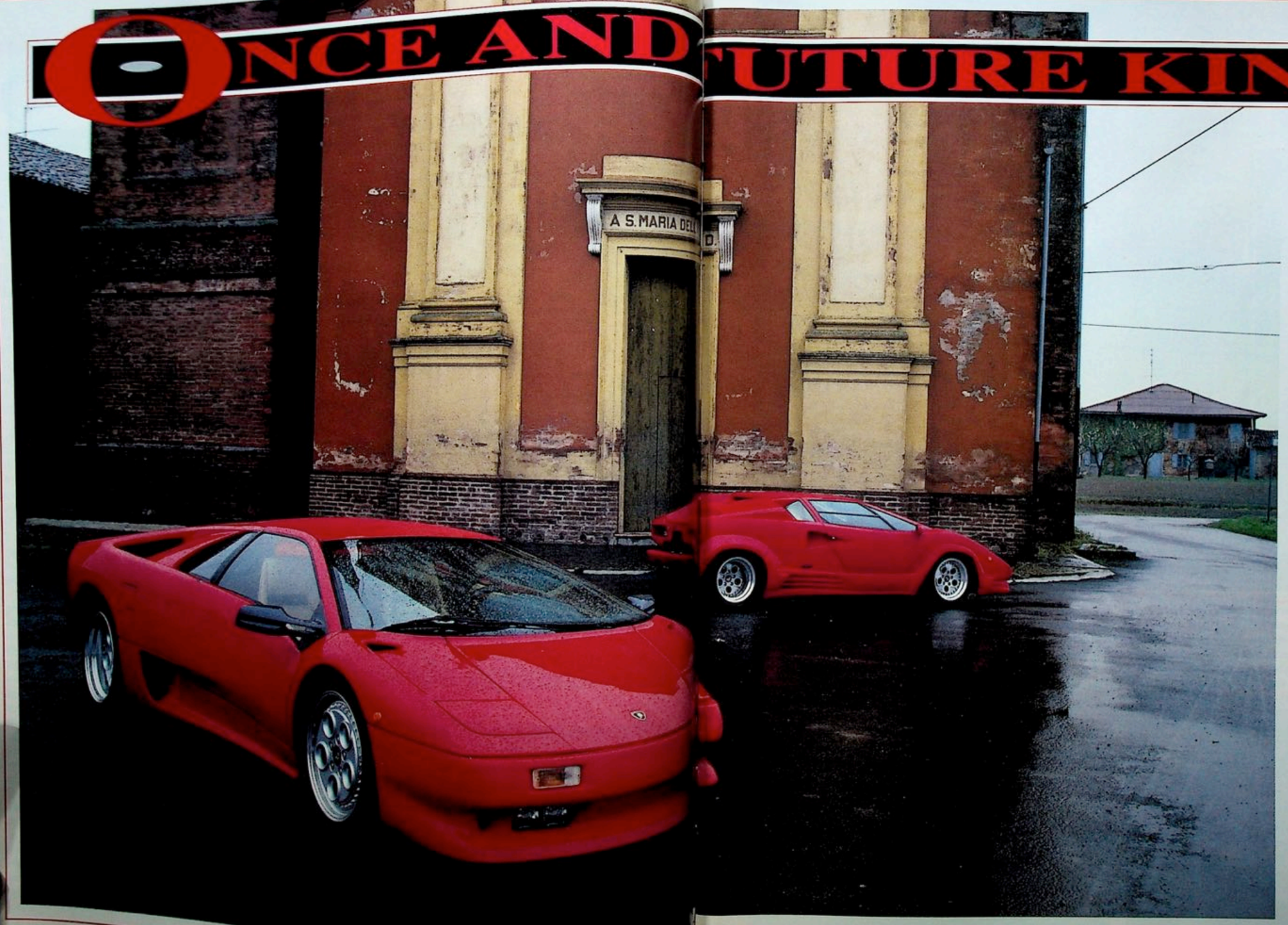
STEERING, SUSPENSION, BRAKES
Suspension: F: struts, tube shocks, anti-roll bar; R: trailing arms, coil springs, anti-roll bar
Steering Type: rack and pinion, power assisted
Brakes: F: 10.5 in. discs; R: 9.8 in. discs
Wheels: 14.0 in. alloys
Tires: Michelin MXV/V 195/60R-14

PERFORMANCE
0-60: N/A
1/4 mile: N/A

"The shifter slips from gear to gear with a crisp, positive feel, each gate easy to hit. You almost think it from slot to slot"

405

ONCE AND FUTURE KINGS

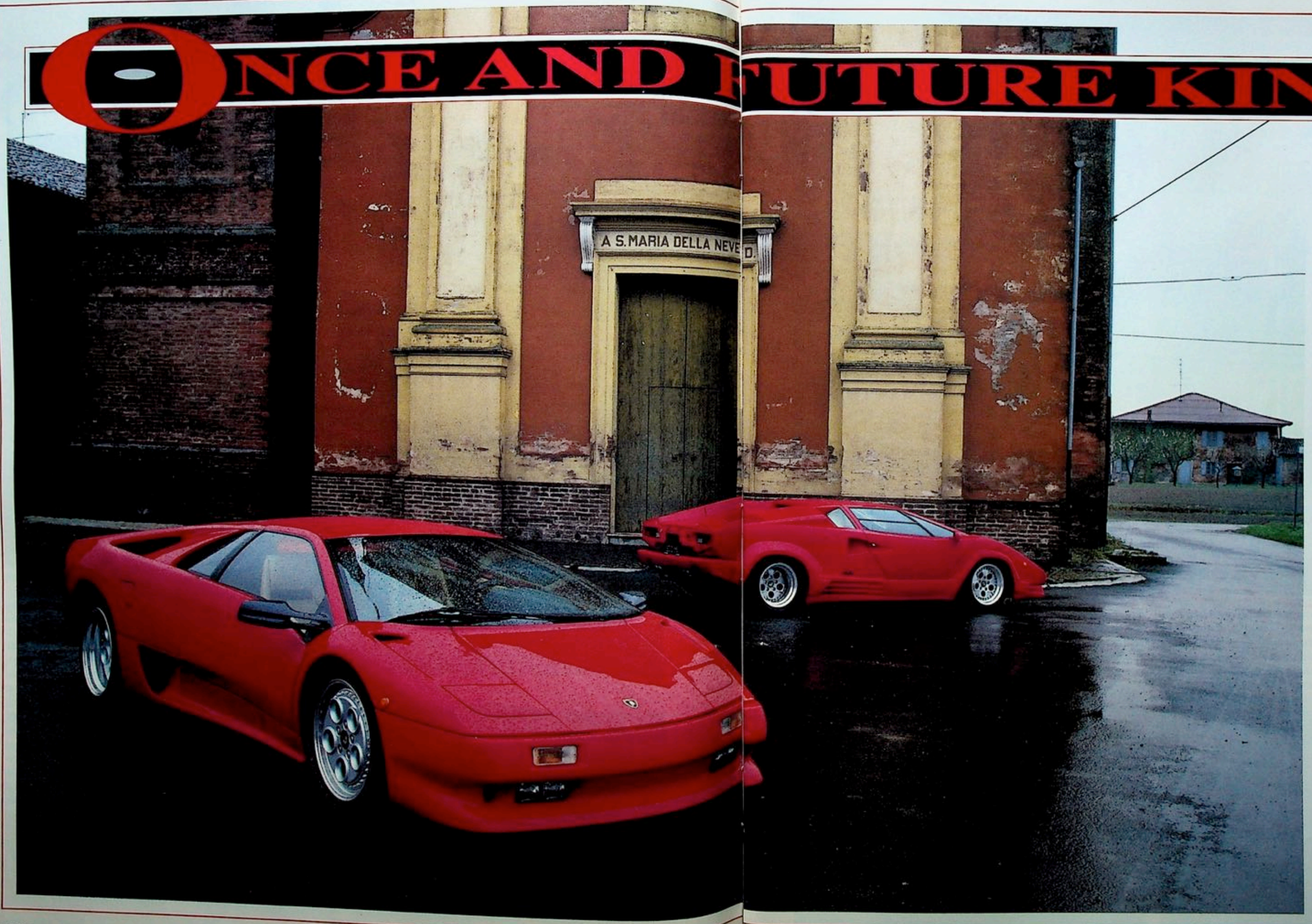


These are the two most significant Lamborghinis of all time. After the 350/400 GTs and the Miura brought attention to Lamborghini in the sixties, it was the Countach that permanently placed the Emilian firm on the exotic car map. The Diablo is the first Lamborghini produced under Chrysler management and must assume the newly vacated throne at Sant' Agata Bolognese. ***Graziella Diana Ferrero*** *spent a day in the company of both cars and former world rally champion Sandro Munari.* ***Art Webb*** *photographed the two in the middle of a driving rainstorm.*

The man with complete, unsupervised access to two of the most desirable chairs in the automotive world is Sandro Munari, head of Lamborghini's PR office. Munari piloted the Lancia Stratos to three consecutive titles in the World Rally Championship in 1974, 1975, and 1976 and took the driver's title for himself in the 1977 FIA World Rally Cup. So one can't really begrudge his position behind the wheel of the Diablo nor his involvement in the car's high-speed testing.

Munari was chauffeur and guide on my first memorable trip around the Sant' Agata countryside in the all-wheel drive Viscous Traction Diablo prototype some months ago. Today we're in the standard two-wheel drive version in our back-to-back encounter with the last Countach, the 25th Anniversary model. Whereas my drive in the Diablo VT was blessed with a typically sunny Italian day, today the good spell of weather has been disrupted by sleet and rain—hardly ideal for transmitting 455 or 492 horsepower to the pavement.

ONCE AND FUTURE KINGS



These are the two most significant Lamborghinis of all time. After the 350/400 GTs and the Miura brought attention to Lamborghini in the sixties, it was the Countach that permanently placed the Emilian firm on the exotic car map. The Diablo is the first Lamborghini produced under Chrysler management and must assume the newly vacated throne at Sant' Agata Bolognese. ***Graziella Diana Ferrero*** *spent a day in the company of both cars and former world rally champion Sandro Munari.* ***Art Webb*** *photographed the two in the middle of a driving rainstorm.*

The man with complete, unsupervised access to two of the most desirable chairs in the automotive world is Sandro Munari, head of Lamborghini's PR office. Munari piloted the Lancia Stratos to three consecutive titles in the World Rally Championship in 1974, 1975, and 1976 and took the driver's title for himself in the 1977 FIA World Rally Cup. So one can't really begrudge his position behind the wheel of the Diablo nor his involvement in the car's high-speed testing.

Munari was chauffeur and guide on my first memorable trip around the Sant' Agata countryside in the all-wheel drive Viscous Traction Diablo prototype some months ago. Today we're in the standard two-wheel drive version in our back-to-back encounter with the last Countach, the 25th Anniversary model. Whereas my drive in the Diablo VT was blessed with a typically sunny Italian day, today the good spell of weather has been disrupted by sleet and rain—hardly ideal for transmitting 455 or 492 horsepower to the pavement.

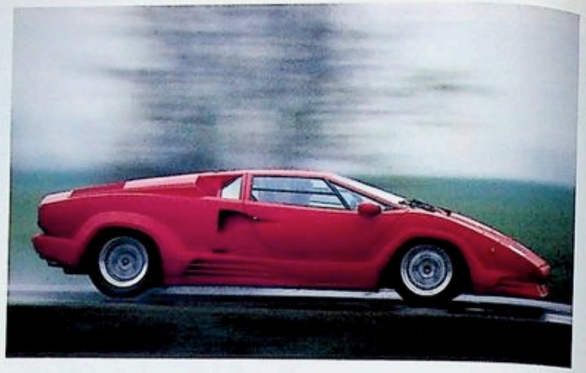
Seeing the two red cars parked near each other in the factory courtyard creates a spectacle and a fascinating juxtaposition. The shock of just looking at the latest Countach is only overshadowed by that of seeing one approaching on the open road — an effect that doesn't diminish with time or familiarity. If the Diablo doesn't stun on first impact, that is only testimony to the style of the older car. The Countach remains unique despite having lost a part of its geometric grace when design fashion turned to spoilers, flares, scoops, and wings. The Diablo, on the other hand, reproposes some Countach elements in a more modern, voluptuous theme.

"Even more than the Countach, the Diablo relies on flowing styling, but its curves are real, not apparent"

One of the more interesting aspects of the Countach is the way in which sinuous forms are created from straight lines, not curves. Even more than the Countach, the Diablo relies on flowing styling, but its curves are real, not apparent. The concentration of mass behind the Diablo's passenger compartment recalls the long, lean flanks of a leopard tensed for action and imparts a sensation of massive hidden accelerative power. The Countach's haunches resemble more the balled, thick muscles of a charging boar.

One can't help but approach the Countach with a reverence bordering on awe. Perhaps no other car in history has ever been the subject of so much eulogizing nor the object of so many adjectives. Not without reason has it been hailed as the definitive Italian supercar.

A supercar, right from its towering ability down to its impracticality. From its scarce interior refinement to its limited rear visibility and low ground clearance. At least in the two former elements, the Countach was challenged by Ferrari's Testarossa, whose less powerful engine gave similar top end performance, although it lacked the Lamborghini's race track manners. The extra finesse in the Ferrari's ride comfort offered better about-town ability for the increasing number of clientele whose desire for pose–value was greater than their driving ability.

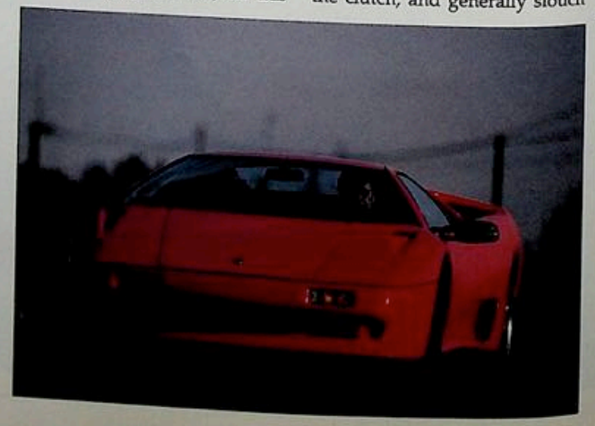


COUNTACH SPRINT

With no sign of increasing hospitality in the Emilian skies, we decided to first take out the Countach for a run around. Munari handled the first stint at the wheel; it's surprising the amount you can learn about two cars by watching a maestro like Sandro Munari wield them.

Perhaps more than any other car in existence, the Countach requires a technique to drive; a technique that, when not practiced regularly, grows rusty and dull. You have two methods of entering the car: right leg first, followed by rump, hunched shoulders and neck, and left leg; or you can use the leather padded sill to slide into the seat and then swivel your legs from where they are left dangling over the edge. Still, until you've got the knack, it's simpler to fall in than it is to get out.

The Diablo, on the other hand, requires a decisive leg-first approach because the seats are a stretch away from the sill's edge. There's more headroom in the Diablo thanks to the extra height and domed roof, which allow the seats to be placed closer to the central tunnel. The main benefit here is that the pedals are less offset to the right than in the Countach's cramped footwell.



quired a touch more contortionism, particularly to avoid the roof's padded edge. The interior of the outgoing model has never been its main selling point and, on this last–ever metamorphosis of the species, it retains that curious charm of the early seventies origami school of design.

After the practiced ease with which Munari had levered himself in and out of the new car, returning to the Countach required a touch more contortionism, particularly to avoid the roof's padded edge. The interior of the outgoing model has never been its main selling point and, on this last–ever metamorphosis of the species, it retains that curious charm of the early seventies origami school of design.

Once we've both settled in, Munari accelerates quickly out the factory gates and onto the main road. The ride is decidedly on the knobbly side of firm, even at the speeds attainable over rain-soaked roads. Those solidly located and huge tires nibble incessantly at the pavement. The steering wheel dances constantly in Munari's hands due to the irregular surfaces of the back roads around Sant' Agata, but the dips and divots never deflect the car from its chosen trajectory.

TRADING PLACES

We swap places and it's my turn to toy the seat into position. I don't think anyone can feel completely at ease in the Countach. In the passenger seat, you notice the total lack of lumbar support. On the business side, you can latch onto the steering wheel, brace yourself with the footrest next to the clutch, and generally slouch and tease your body into a compromised posture. Clutch action, so much heavier than a Testarossa's, is made more difficult by the pedal's angle. I have to shift myself forward to depress it fully, even though the seat is completely forward.

The European edition of the 25th Anniversary model is the last exoticar bastion of Weber's glorious 44 DCNFs. The accelerator pedal is correspondingly firm yet throttle response is instantaneous even with all those levers and springs to be pulled. Blipping the throttle at rest causes the car to rock perceptibly in spite of the massive rear track and wide tires.

"Moving off can be quite adventurous. You soon discover that the rear glass allows a splendid view of little more than the air intakes"

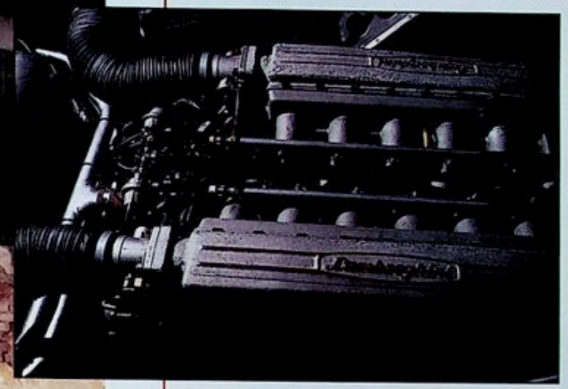
Moving off can be quite adventurous. You soon discover that the rear glass allows a splendid view of little more than the air intakes. The token right-side mirror is so far away, you can barely see it, let alone the image reflected in it. Up front, things are better: you can use the rising wheel arches to place the car and the invisible nose is not really a problem.

Once under way, the steering is direct but heavy, much like the other controls. The gearbox has a lovely two–action movement: first line up the lever, then drive it into the chosen gate. If the clutch isn't fed in carefully, the wheels spin on even low revs, an effect that's aided and abetted by the wet road.

The engine is a wonderful source of seamless energy. It will trundle along happily at speeds around 60 mph, but it's difficult to keep there. The most minute pressure on the pedal will have the car lunging. Even without summoning up all the engine's punch, you find the Countach reeling in other cars and corners quickly.

There is an appreciable amount of sound–proofing and the cabin is fairly quiet, but the reason for buying a Countach is always audibly present. Happy in its work, the V12 keeps you informed

of its every revolution — the individual sounds of the top and bottom ends can be distinguished and the confluence of the two makes for stirring music.



Summed up, the Countach is not a difficult car to drive quickly, but demands a lot of concentration, making it a tool for the purist. Its heavy commands inspire confidence, although tooling around town can be nerve-wracking due to the sensitive accelerator and disconcerting lack of information about what the world is up to behind your shoulders. On the open road, it is a machine for going full tilt: plant your foot down on the straights and brake early for the corners because its limits are too high to be breached safely when alleys and farm fields provide the only run-off space.

"At idle, the new V12 remains a quiet murmur. As we maneuver down the main road, the engine is still a fairly unobtrusive traveling companion"

THE DEVIL ASCENDANT

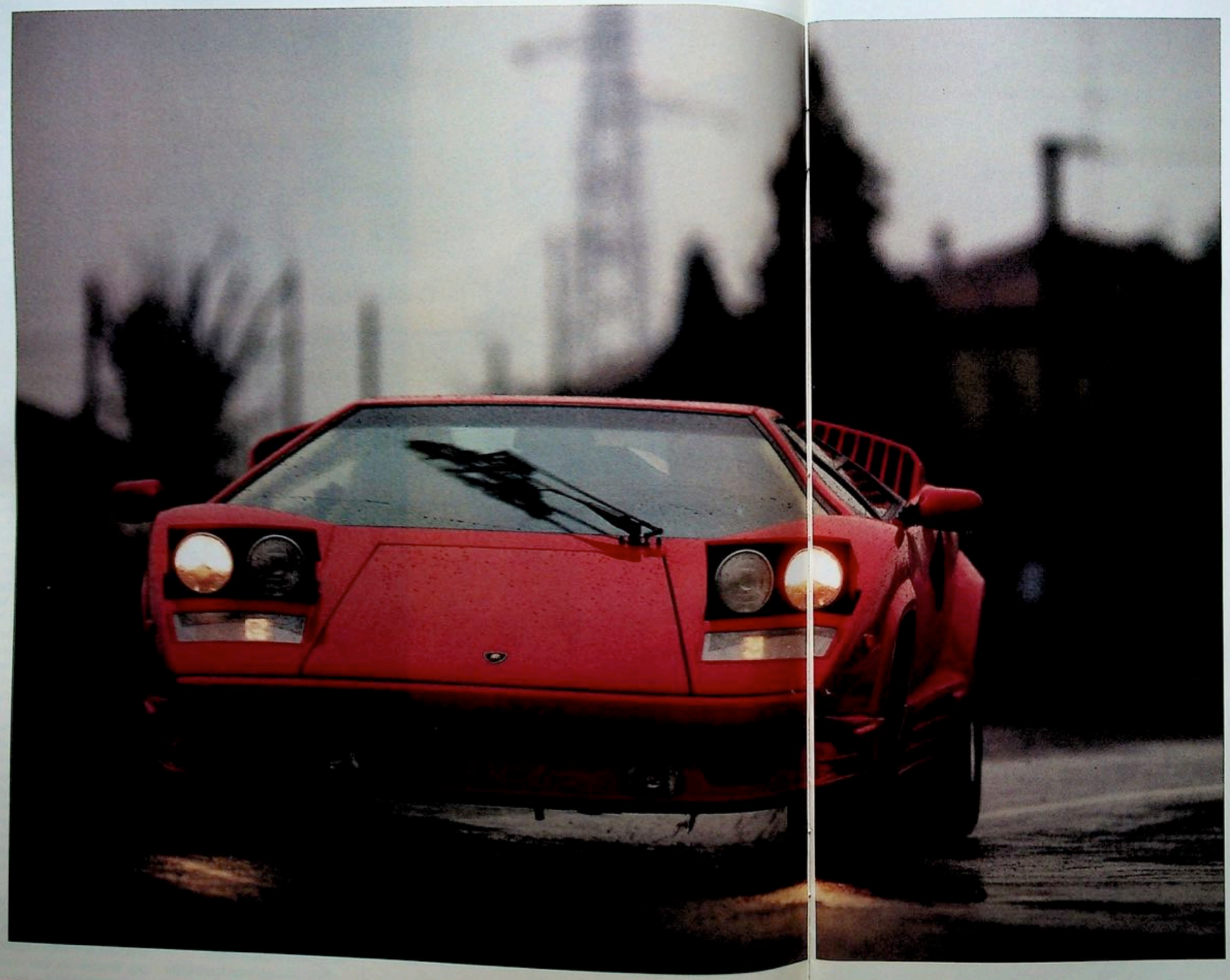
All of which brings us to the Diablo. Still crafted rather than built, the Diablo nevertheless offers a much higher quality and accuracy of construction than the Countach. The underlying spaceframe is no longer hand-jigged and certain panels are now stamped rather than hand-beaten. This goes a long way towards providing an excellent finish.

With Munari once more at the wheel, I drop myself inelegantly into the passenger seat where I find myself comfortable at once. The cabin ambience is a revelation after the Countach, the only area in which the old master was really showing its age. The new interior is pleasing — simple but classy in the best Italian tradition. About 95 percent of the work is attributable to a Chrysler man, Bill Dayton, who transferred to Sant' Agata Bolognese for the undertaking.

The Diablo is some 10 inches longer than the Countach, and most of that landed in the wheelbase. The passenger compartment thus provides slightly more leg room. The thinly padded bucket seats are supportive in all the right places, but their relatively shallow side bolsters don't appear capable of keeping you from rolling around. Unfortunately, I'm not about to find out as it's clear that Munari won't be using the Diablo to demonstrate the cornering techniques he employed in the Stratos to win the Monte Carlo rally in 1977.

At idle, the new V12 remains a quiet murmur. As we maneuver down the main road, the engine is still a fairly unobtrusive traveling companion. The ride at low speed has the same knobbliness of the older car, though slightly more supple; softer rubber bushings have been incorporated into the revised suspension set-up. Turning off the main road towards where the Countach is waiting for our brief photo session, I thought I detected a little more body roll.

We accelerate. The speedo indicates about 70 mph already. The ride is beginning to show its true nature, smooth without floating. Remarkably little road noise is transmitted by the chunky tires



and no wind rustle to talk about. The cabin is so quiet you can get lost in thought trying to detect nuances in the muted growl coming from behind. Listen too much and watch too little, though, and you'll fail to appreciate the marvellous side and forward vision provided by the new design. The sculpted leading edge of the side glass gives a tremendous impression of time and space hurrying by.

Munari is making the car progress smoothly and the V12 responds, sounding potent and with characteristics similar to the old V12. Then we stop for an oncoming truck. Once the truck passes, Munari's right foot becomes more insistent and suddenly the engine tone changes. It lowers and becomes deep-throated, different from the rumbling thrash of the Countach. It opens out into a tingling, metallic-edged snarl overlaid with an insistent turbine-like whirr from the valve gear.

"The Diablo's back tends to drop more noticeably than the Countach's when the power is turned on, but its approach to corners seems equally impeccable"

Another section of space and time has just swooped by. We're up to 80 mph without realizing it and Munari has just snicked the gear lever into fourth; ample evidence of the thumping torque with which this new engine can whisk the Diablo along. And all this at little more than 4,500 revs. It sounded so magnificent, I wanted Munari to send the tach needle spinning higher.

In spite of the anti-squat geometry, the Diablo's back tends to drop more noticeably than the Countach's when the power is turned on, but its approach to corners seems equally impeccable. The Diablo really starts to feel happiest when approaching the 100 mph mark. The whole car pulls together, the ride becoming incredibly fluid while conversation levels remain polite, with no undue increase in engine noise.

With the Diablo, Lamborghini obviously intended to eliminate some of the Countach's incivility. It may seem heretical to suggest using such a brute to plug back and forth from work—this car is more at home on wide highways where it can attack long sweeping bends with the accelerator brushing the carpet — but at least it has the clear duality of purpose that the Countach, almost deliberately, has always been missing.

The Diablo embodies enough character and technical advancement to prevent even the most ardent fans of the Countach from indulging in dewy-eyed farewells. The Diablo combines world-beating aggression with typically Italian style. No mean feat for a company that is a mere 27 years young.

SCI

To complete our tour of Italy's best supercars, we had to include the Ferrari F40. ***Kevin Blick*** *left the quiet of his home in southern England for a day of lion taming at Fiorano. After ample instruction from Ferrari's ace test driver, Dario Benuzzi, Kevin took his turn with the whip and chair. With practice, he controlled the beast. Photography by* ***Art Webb****.*

WHIP & CHAIR

TO BE HONEST, I was nervous. All right, a bit frightened even. You would have been, too. I can imagine a novice lion tamer feeling much the same when he heard the cage bars slam behind him and stood gazing into a mouth of snarling teeth, clutching only a rawhide whip and flimsy chair for aid.

I'd already heard the savage roar of the beast I'd been sent to tame. Veteran Ferrari tamer, Dario Benuzzi, had taken me through the familiar initiation rites. He had cracked his whip for six spine tingling laps of Fiorano, forcing this animal to bend to his will with a cunning blend of aggression and tact.

It was a masterly display. But now it was my turn. Wisely, Benuzzi stepped out. He was going to remain ringside. Even so, he would be watching. Behind that calm, patiently smiling face, I knew he would be wincing at my clumsy efforts. After all, you don't send off a stranger in your rarest car (list price, $300,000; open market price, nearly $1 million) without a qualm or two.

I would have liked some privacy while I tried to fumble my way into familiarity with the F40, but along with Benuzzi in the Fiorano pits was the Alfa Romeo CART racing team testing for the new season. We had

to slip our sessions in between their testing breaks and lap beneath their cynical gaze.

A lion tamer will tell you that he never actually tames his animals. The relationship is one of mutual respect. And no one would call the F40 tame. It's a piece of packaged ferocity.

Merely sitting in it is confirmation enough of that. You slide across a wide sill, then drop down over a high Kevlar-coated box section into the simple, wrap-around bucket seat. Inertia-reel lap and diagonal belts provide unconvincing security. The flimsy plastic door slaps shut; a crude pull–cord will open it again.

The footwell is short, the huge front wheel arches pressing into the available space. Even if you had never sat in a race car, you'd know in an instant that the F40 was, at heart, just that. No frills, no fuss. Glovebox, cigarette lighter, stereo? Who needs such nonsense. A flat, matted floor. A cheap felt-covered dash panel. The checkered patterns of undisguised Kevlar reinforcements all around. The tubes of a massive roll cage behind your ears.

I dropped awkwardly into the driver's seat, tentatively prodded the massive drilled steel pedals, eased the seat forward a notch to get a better grip on the small Momo wheel. The wheel felt a little high in relation to the low seat, but otherwise the driving position was spot–on. Ahead, a half–round instrument cowl held speedo and tach dials with temperature and boost pressure to their sides. An additional bigger boost gauge had been clamped temporarily to the side of this well–used development machine.

Off to the right, a row of minor gauges — oil pressure, temperature, and fuel — occupied the fascia center. Below them, a pair of knurled wheels worked the air conditioning (the car's only luxury and an optional extra at that). Wipers, flashers, lights, horn, fog lights, that was it. The bare street-legal essentials and nothing beyond that.

A small tag dangled from the ignition key identifying this as F40 Number 43. I twisted the key and prodded the small, rubber-covered button beside it. Behind me, the twin–turbo V8 grumbled into life as 478 horses woke noisily from slumber.

I forced the reluctant clutch pedal down and pulled the chrome gear stick back and towards me through that famous open gate to

find first. Tensing my calf muscles, I tried to feed in the clutch, but still the machine staggered and shuddered as the power took up abruptly.

But we were away for the first, cautious lap. The steering was surprisingly light (it had been unsurprisingly massive when maneuvering). The brakes —

Benuzzi had warned me about the brakes — were absurd. Imagine trying to tread a brick down into a pool of almost set concrete.

I stepped down on the gas pedal more confidently. Suddenly the engine's low growl turned into an angry, chilling roar that seemed to fill the cabin as the tach needle flashed up toward 7,000 rpm. I had probably noted that subliminally because I don't remember my eyes ever leaving the road ahead. Where had it gone? Instead of a straight, here was a corner — already. I pressed down painfully hard on the center pedal, slammed the reluctant gear stick into a lower slot. The F40 seemed to stop on its nose and we made the tight 180 degree turn with comical ease. As we exited, the big car ran wide, understeering, as if to chastise me for my lack of confidence. Benuzzi would not have let me do that, it told me silently.

Okay, I won't either next time. We eased through the sequence of constant radius curves, over the bridge, and down to the tight hairpin left. Okay, you brute, I'm in control, I told it with my right foot. Oh, no you're not, the F40 roared back. Immense turbo-charged torque tore those gigantic rear tires from the road with the careless savagery of a lion's snap. Half panic-stricken, I wrestled with the wheel, struggling to bring the big beast to heel. Reluctantly, untidily, it obeyed.

I remembered Benuzzi's other advice. Never apply full power unless the steering is completely straight, otherwise…a gold-edged smile had said the rest.

OCEAN OF NOISE

Lap Two came and went. Drowning in an ocean of noise, I was desperately trying to remember cornering lines from my last visit here. By comparison, the 348 (January 1990) now seemed so easy; the F40 demanded constant vigilance. Only on the long main straight could my sensation-battered brain snatch a moment's respite as we passed the pits, snatching third then fourth.

Benuzzi had braked 200 meters from the straight's end. I left myself an extra 50 and sometimes it still didn't feel enough. The big beast was hitting 220 km/h (136 mph) and still accelerating — viciously.

Press that pedal harder, harder. Force the reluctant gearbox down into second, then first. Those last few meters were gone in a moment; we swung left then right into the wide hairpin.

In second, the engine slips momentarily off boost before throwing itself back into the fray. First seemed quicker. It was certainly more spectacular, trying to balance power against steering to find that perfect tail–drifting exit.

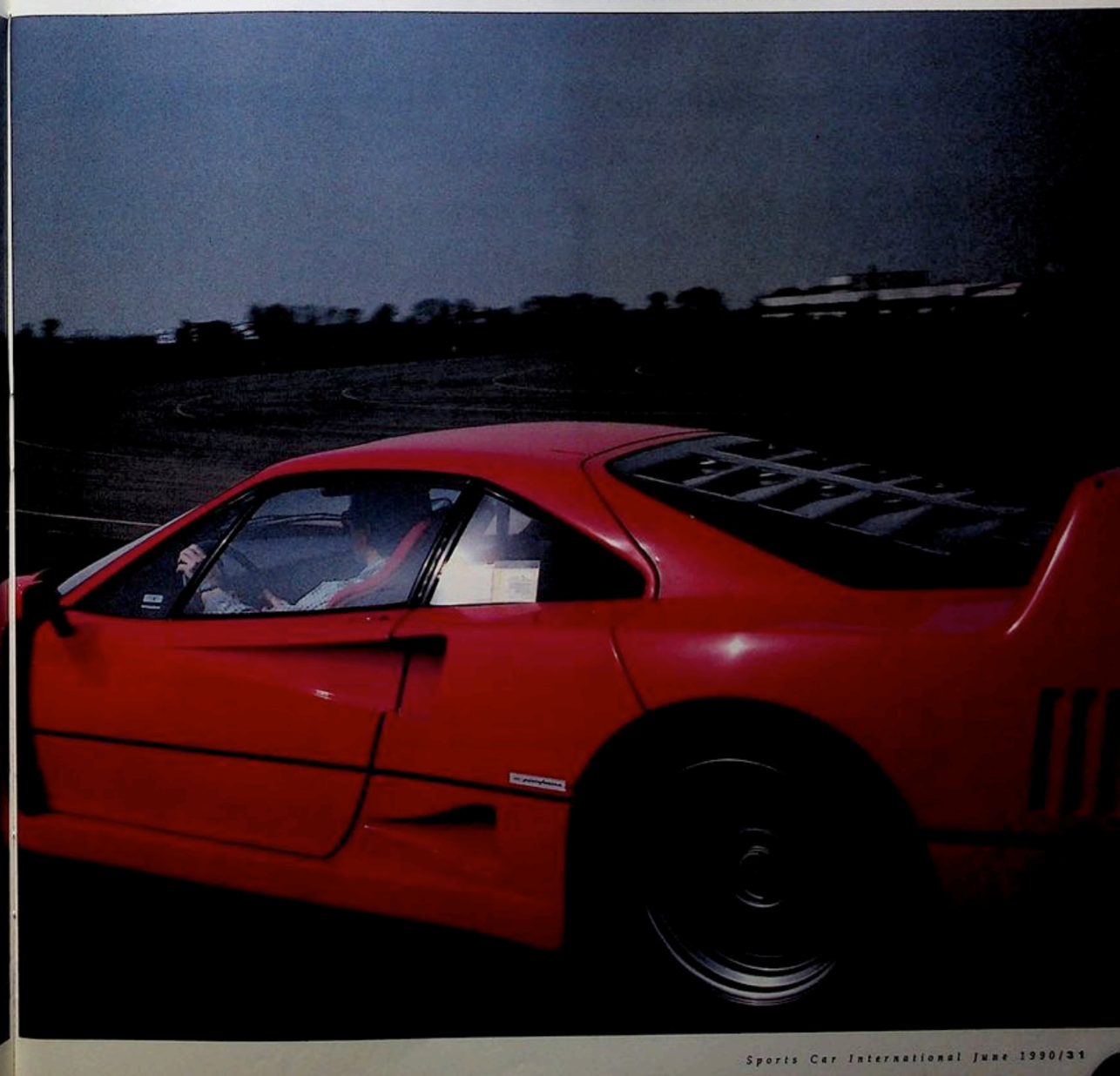
But the F40 is no mere bottom gear power–slider. That's kid's stuff. No, on any of Fiorano's bends an incautious stab of throttle will send the rear snaking out, even on the 120 mph left–right sweeps through the back of the circuit. Such is the immensity of this machine's power and torque.

How can I better convey that to you? Far too many of the superlatives have been wasted before on what are now transparently inferior machines. I've been accelerated as fast, but only by purpose–designed racers and rally cars. And never has a car smacked me with that same thunderbolt of thrust as when the F40's twin blowers dump their fully pressurized charge into the combustion chambers. Remember, the F40 is not just hugely powerful, but has been pared of every wasted ounce of flesh. A skeletal steel frame, clothed in Kevlar. A piece of fantastic plastic, scaling in at only 2,425 lbs. A little VW Rabbit would be only 220 lbs. lighter!

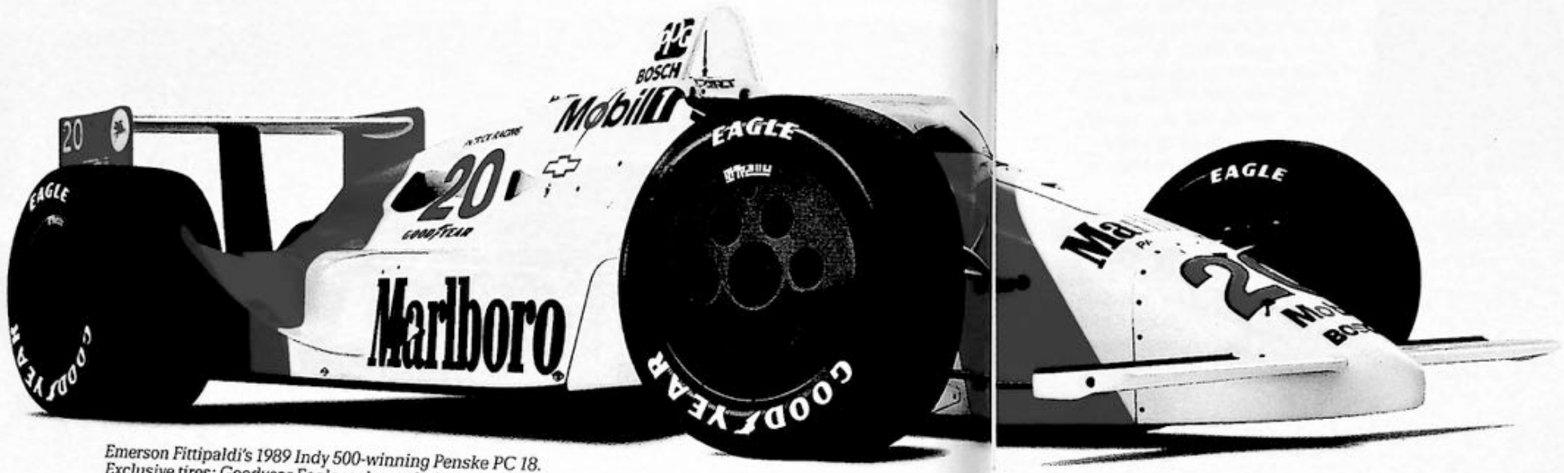
KALEIDOSCOPE

Five laps had gone by and my brain was starting to unscramble the kaleidoscope of images. And as my confidence grew, so the F40 became more manageable. Mutual respect; this was certainly the way.

It needed a firm hand, seeming to recognize and respond to its pilot's confidence. Sure, hard braking; accurate steering; and above all, a sensitive foot on the right pedal. Feed that power in, feel the nose tighten and the rear begin to move out. Ease the steering back straight then — bang! — floor the throttle and let it rip.



ONLY ON EAGLES.



Emerson Fittipaldi's 1989 Indy 500-winning Penske PC 18.
Exclusive tires: Goodyear Eagle racing radials.

The 1990 Chevrolet Beretta Indy 500 Pace Car.
Exclusive tires: Goodyear Eagle "Gatorback" street radials.

The best-known racing event in the world runs exclusively on the best-selling performance tires in the world: Goodyear Eagles.

A Goodyear Eagle "contact patch." Where an Eagle demonstrates its superiority.

On race day, more than a quarter of a million people will be in attendance at the 74th running of the Indianapolis 500.

And for the last eighteen years, the winning car at the world's best-known racing event raced to victory on the world's most successful racing tires. Designed, engineered and made by Goodyear.

This year will be no different.

All 33 cars, including the Penske Chevy 90 of 1989 winner Emerson Fittipaldi, will be on Goodyear Eagle racing radials.

The 130 mph, V6-powered, Chevrolet Beretta Indy Pace Car, will also be on Goodyear Eagle radials.

But in this case, they will be V speed-rated Goodyear Eagle "Gatorback" high-performance street radials. From the best-selling line of performance tires in the world.

So once again, every single team at the world's number one racing event, the Indy 500, has chosen to use Goodyear Eagles.

And only Goodyear Eagles.

GOODYEAR

The best tires in the world have Goodyear written all over them.

Yet I still couldn't string a smooth, fast lap together. I'll admit that. A few good corners would be followed by a ragged one—too much throttle or too little. Concentrate, I kept telling my overworked mind and tiring limbs.

Finally, at the end of the main straight the inevitable happened. I fumbled once too often at that time-worn third-second shift, found only neutral, tugged the wheel round too hard and arced into an embarrassing spin. Time to come in, reflect and make some notes. Benuzzi grinned and shrugged, his real thoughts masked behind the inevitable dark sunglasses.

Yes, he agreed, it understeered a little — that was necessary because otherwise on the road it would be too tail-happy. Yes, the brakes were hard, but that was the way to get the best response. And, yes, the harder you drive it, the better the F40 behaves. This was why Ferrari test drivers, it was translated for us, thought the F40 the easiest of all Maranello cars to drive at Fiorano.

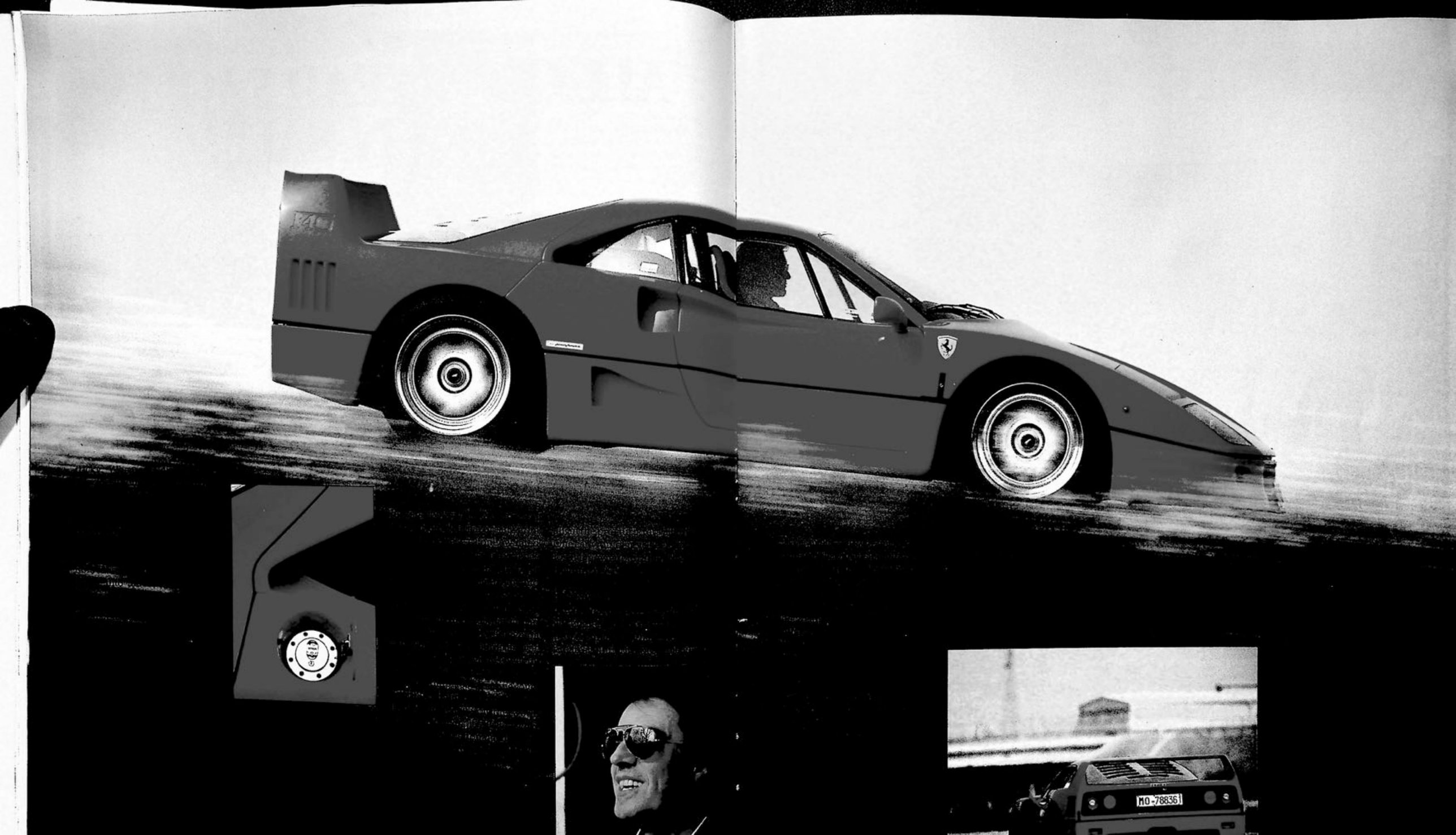
BENUZZI

There are only about 15 Ferrari test drivers — only four in the development department. Benuzzi is tops, even among this exalted group. The 44-year-old is the company's chief test driver. He's the only one allowed to drive Formula One cars — and he does. He did most of the behind-the-scenes work on the Formula One car's innovative semi-automatic transmission.

He has been with Ferrari since 1971, first as a technician, then as a production vehicle test driver. Now he develops the prototypes: GTO, Mondial, 348, F40 — these are all the results of his work.

Later, over lunch, he told us that the test driver's most important attribute was not bravery or reaction speed, but mechanical sympathy and understanding — a knowledge of what is happening to the car in motion.

Had he driven other supercars? Yes, he had. And how did they compare — the Porsche 959, for example? A diplomatic smile, then the translation came filtering through. The 959 is a fine car, but when you drive very hard, it gets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WIND BLOWN

Is the Mariah Mode Six a hand-tailored exotic or just the world's most heavily modified RX-7? From a tiny factory in Santa Barbara comes a thoughtful and well executed special that's half exoticar, half GTU racer. If only you can afford to play. John L. Stein reports on the Mazda madness, along with photographer John Crall.

AT REMOTE JALAMA BEACH in Southern California, there is nothing to stop the wind between Japan and the Mariah Mode Six's sloped nose. It is fitting that the sports car would have found its way here because the word Mariah means wind. But can a windblown Mazda RX-7 find its way through the surf and up the beach to success?

Its supporters argue that the Mariah Mode Six is a hybrid, the best of Japanese sports car engineering combined with hand-crafted coachwork and interior. Detractors wonder how a $78,872 Mazda has a chance to succeed at all. It is, after all, still an RX-7. Perhaps it is only here on the western frontier of America that such a thing could possibly be conceived, let alone flourish. Time will tell.

The road to Jalama is long and winding, with tight bend switchbacks, and the occasional construction delay. This may a well describe the Mariah's road to market. For, you see, the Maria automobile is not the product of a multinational corporation or eve of a group of well-heeled investors. It comes, miraculously, fro two men working in a corrugated steel building that could hav come from the set of *McHale's Navy*.

Jim Hagerty and Dan McCue — along with a handful of employ ees — are the soul and inspiration of Design Energy, a company tha has made a name for itself during the past 12 years building boy racer body parts for the first-generation RX-7. That experience, plu a prior history of industrial design and a penchant for innovation have well equipped the pair to tackle a project as difficult a improving on the current RX-7 Turbo II. Amazingly, in some way they have.

Three years ago, McCue sketched the firs drawings that would "uniquefy" the sec ond-generation RX-7. With a new RX-7 use as a mule, one by one the replacement piece were shaped to fit. In the end, McCue's component integration reflects the care of

NASCAR body man. The fiberglass body panels replace the originals bolt for bolt. Seams are true, the paint masking straight. Even deep inside the functional scoops and vents, the fit and finish is perfect.

To say that Hagerty and McCue are perfectionists would be like calling dogsled explorer Will Steger curious. They are detail zealots. At least they are about their craft. The Design Energy shop may be stacked halfway to the roof with old wheels, dusty seats, and body templates from past projects. Yet from the middle of the debris has emerged a prize, finished to the eye teeth in Blaze Red acrylic.

Mariah Mode Six serial no. 002 is an impressive piece of work, and in reality it bears only a slight resemblance to the standard RX-7. The Mariah uses the basic unibody structure, roofline, and suspension and drivetrain. Virtually everything else is reworked.

Sub-Exotic

Why even bother in the first place, when the RX-7 Turbo II is already a perfectly good sports car? Design Energy president Hagerty feels that there is a need for personal vehicles in the sub-exotic category. That is, below the level of a Testarossa or a Diablo. And with the price of a Porsche 911 Carrera sneaking toward $60,000, who knows? Maybe $78,000-plus for a hybrid isn't too much. If that's so, the Mode Six is ready for production. Designer McCue says, "We don't see this as a super exotic. It is an alternative for someone who wants to feel and be around art and automotive entertainment."

Maybe you could classify the Mariah as rolling art. But it more resembles a street-legal IMSA GTU racer. Just ask the local populace, which will no doubt be straining its fourth and fifth cervical vertebrae for a better look.

Their awe will likely prompt the question, "What is it, anyway?" There are few visual cues to give the answer. If you don't know rooflines, then the Mariah's drop nose, widened rear flanks, and wing aren't likely to help. But a practiced eye will be able to tell where the foam-reinforced fiberglass has been bonded — permanently bonded — to the doors and rear quarter panels. The rest of the parts simply bolt on. McCue points out that the only parts of the car for which Design Energy does not offer bolt-on replacement components are the rear quarter panels. Because they are grafted to the original unibody, these must be repaired on the car. How sure is Design Energy of the bolt-on parts' quality? It assures prospective buyers that in a pinch, any component can be air-freighted overseas and will offer a perfect fit. With no drilling, cutting, or tweaking. That's more than can be said for many aftermarket body manufacturers — kit cars builders, if you will.

Leather and Wool

But as you can see, the Mode Six is not exactly a kit car (a term that is not spoken at Mariah headquarters). Sliding inside the car will give another indication of why not. Here you are greeted by enough fine leather and wool to fill a Long Beach shipping dock. Virtually everything is recovered, including the floors, dashboard, door panels, headliner, and new power Recaro CSE seats. The fabrics and leather are chosen from an array of suppliers the way one would stock a wine cellar — item by item according to quality and taste.

Indeed, the quality of work invites personal inspection. Each interior component is disassembled, fitted with its new leather covering, then put back together. Even the adhesive used behind the perforated door panels and headliner is dyed to match. You just can't believe anybody would go to these lengths to upgrade a high-volume Japanese sports car. But Design Energy has, and the attention doesn't stop at leather and textiles. The visual centerpieces of the interior are a wooden Momo wheel and shift knob. They aren't the ideal driving components because they tend to get slippery with sweat during vigorous manuevers, but you can't beat them for atmosphere. That is precisely the idea. As Hagerty points out, the remodeled interior is intended to offer its occupants a more enjoyable, natural experience — with a minimum of plastic hooey.

Oh, and then there's the electronics laboratory mounted under the hood, in the dash, and beneath the tinted backlight. The Mariah is outfitted with the latest in Denon stereo components and a remote security alarm. This isn't exactly *Driving Miss Daisy*, you know. The stereo alone has 30 switches and buttons to enhance listening pleasure and driving aggravation. Why, on our trip to Jalama we listened to "The Locomotion" by Kylie Minogue some 13 times before we figured out that the CD player was set in the "repeat" mode. Anyway, the sound was superb.

Not even Kylie's pseudo-punk-pop oratorio can drown out the sound of a twin-rotor Wankel under pressure. That's because the Mariah's special underhood electronics system increases the Turbo's boost pressure to 12 psi — and the engine's output to a claimed 300 bhp. Along with reworking the rotary's electronic timing, injector, and boost maps, Hagerty designed a new snout-mounted air-to-air intercooler that he claims significantly reduces the incoming air's temperature.

As a result, the Mode Six won't leave you all dressed up with nowhere to go. The car gets down the road in a hurry, making quick work of the stock Mazda 5-speed and 4.10:1 limited-slip axle. (Design Energy claims 5.2 seconds from 0 to 60 mph, and 13.6 seconds at 105 mph for the quarter mile. Time limitations prevented a full SCI track test session.) A free-flow exhaust system capped off with a pair of Supertrapp resonators produces a satisfying, but legal...hummm. There's still no better word for it.

Suspension Mods

The extra go-power is well harnessed by a complement of suspension mods. Hagerty tossed out the RX-7's stock shocks, springs, and bushings in favor of stiffer units all around. Heavy-duty springs drop an inch off the car's ride height, while tough urethane bushings keep the suspension arms in line. Michelin's latest rubber, the Sport XGT Plus, is mounted on Compomotive 17-inch composite wheels in massive proportions: 245/40ZR front, 315/35ZR rear. A strong dose of negative

rear wheel camber, or the additional wheel offset, may contribute to the Mariah's unsettling tendency to hunt in a straight line. There's no complaining about the Mode Six's cornering potential, however. In the Santa Barbara Mountains, we encountered hairpins marked for five mph and sweepers that were good for a hundred. Once the Mariah turned in, stick was the operative word.

Amazingly, the noise, vibration, and harshness ("NVH," in the language of platform engineers) is still acceptable for freeway work. Despite the cinched-down suspension, all semblance of a civilized ride is not lost. We spent a limited amount of time on the freeway — perhaps 50 miles total — but that was enough to convince us that the modifications are livable, even for a commuter.

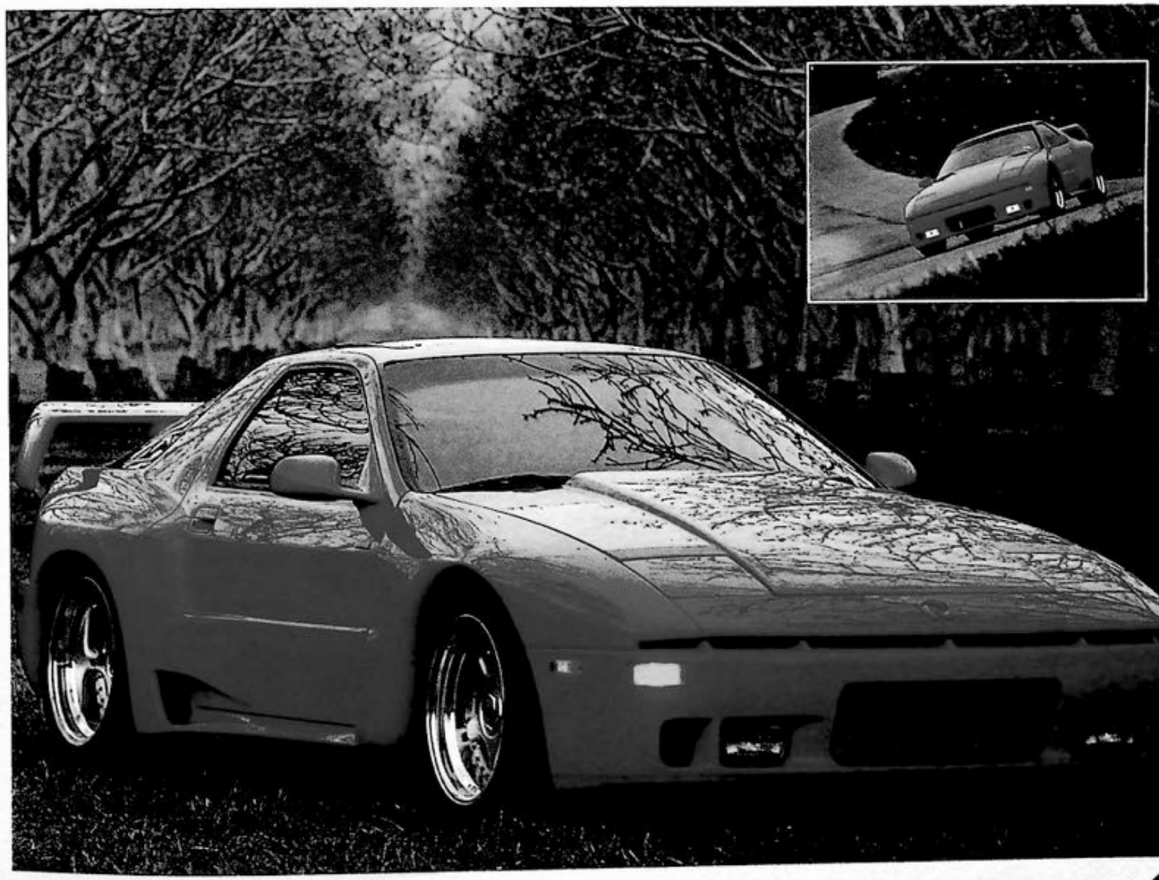
Of course, commuting implies that you're going to drive the Mariah somewhere and then go inside for eight to ten hours. That's probably not the best use of the scarlet Mariah. What we did with it is probably a little closer. After leaving Design Energy (414 N. Salsipuedes, Santa Barbara, CA. 805-965-5115), we sprinted up to San Marcos Pass and over the mountains. Now, we wouldn't speed over San Marcos, although the space shuttle could land on any of its straightaways. Thanks to the luckless lot of the American driver, San Marcos has turned into of a wrecking zone for cars these past years, and is now well patrolled. So we settled in, adjusted things, and generally got comfortable with the car. This is also where we got to hear that song 13 times.

Replica Blondes

We ended up in Solvang. Solvang is important because it's a replica town, not a real town. For God's sake, there are replica windmills here. Replica Dutch doors, replica Dutch blondes, too. We shifted down and followed one into town. She was a Lycra-clad goddess in a CRX who obviously knew that her hair was her most important asset. People visit Solvang for the same reason they go to adventure movies. To experience something vicariously, something that's not real but looks real. Arriving in an Austin-Healey 3000 replica would be perfect.

Is simple posturing what the Mariah Mode Six is all about? Sure, it's bold, racy, and maybe even a bit opulent. It depends on your taste. But there is honesty in it. The Mariah uses real materials and real components and generally follows the real sports car protocol of form follows function. The worst thing you can say about it is that it's rather expensive. So is good real estate and a good wine cellar.

In the end, it was obvious. The Mariah Mode Six doesn't belong in Solvang, it belongs on an open coastal road. One that crests and falls and turns like a wheeling condor. Because only there can a car be judged on its own merits. And that's how the Mariah came to be parked at Jalama Beach with its nose into the wind, staring out to sea. SCI



Life Line

Moss Motors, Ltd. supplies the parts needed by thousands of Anglophiles worldwide. Not only parts, but hope, too. ***John L. Stein*** *takes a look at the California company that has done a yeoman's service in keeping the British sports cars of our youth available — and affordable. Photography by* ***David Gooley****.*

THE BEST THING you can say about fairy tales is that they always turn out well. One that might have described the British sports car industry of the '50s through '70s is *The Ugly Duckling*. As we all remember from H.C. Andersen's classic, a genetically deficient little duckling grows up to kick ass on the professional swan and goose circuit. It's a nice concept, as any skinny kid with glasses and jug ears will tell you. Too bad it didn't work for the British sports car.

What really happened was that MG, Triumph, and Austin-Healey grew just big enough to get slam dunked to the bottom of the pond. The villains were an ever-tightening emissions and safety net and consumer preference for other brands. (It probably didn't help that the cars were reputed to need on-board mechanics. What did people think jump seats were for?)

Now there are lots of British orphans scattered across the land. You probably know of one or two. A half-rotten MGB or Triumph TR3, cockpit overflowing with gardening tools and leaves, sitting in a side yard. It seems these cars need a fairy tale just to live and breathe again. Fortunately, one exists. It is Goleta, California-based Moss Motors, Ltd.

Moss Motors provides tens of thousands of parts and assemblies to keep these ancient ducklings, and a few early Jaguars, up and running. This didn't just happen overnight. Back in post-war 1948, Alan Moss was just another young California lad with time on his hands and a penchant for speed. He satisfied both with an MG TC, the buggy-wheeled roadster that first made a name for sports cars in America.

Being a socialite as well as a rather industrious fellow, Al Moss made his place into the favored hang-out for L.A.'s early British sports car crowd. It became known that he had — or could get — just about any part a guy needed for his MG. One thing led to another, and before long young Moss had himself a fledgling car parts concern as well as an importer's license for MG and Allard. Eventually, Moss would expand the parts and accessories line to include Triumph and Austin-Healey.

Sensing that he could base a lucrative mail-order operation outside of the Los Angeles area, Moss moved the parts business 100 miles north to Goleta in 1963. The nearby Pacific coast and Santa Barbara Mountains provided a breathtaking setting as well as plenty of good driving.

THREE DECADES

Nearly three decades later, the Moss phenomenon continues under the ownership of Chairman/CEO Howard Goldman, a long-time friend of Al Moss. To fully understand how the company is able to do well given the demise of marques it serves, one must first understand the scope of the vintage British sports car market. Goldman estimates that there are some 250,000 post-war British cars surviving in the United States alone. To put it in perspective, that is roughly equivalent to an entire year's production of Mustangs and Camaros, plus the number of golf balls Gerald Ford uses in a celebrity tournament.

A short wrestling match with grammar school math will tell you that all of those old cars are likely to eat up the world's supply of spares in a hurry. That is, unless more are made. That's the Moss forte. Not only has Moss Motors, Ltd. managed to buy up large supplies of NOS (New Old Stock) parts worldwide, but it has acquired the rights to reproduce virtually everything else.

"Virtually everything else" ranges from grille medallions for Austin-Healey 3000s to crankshafts for Triumph TR6s to complete leather interiors for Jaguar XK120s. With the arrival of a replacement unibody for the MGB this year (see sidebar), even a total rustbucket can now be put back in running shape.

The Moss people are more than a little edgy about discussing the firm's revenues or net profit. One wonders why. After all, you can find out how much GM or Mrs. Field's Cookies made last quarter by reading Newsweek. Moss only allows as how its slice of the vintage British car parts business is a "multi-million dollar" affair. All told, according to Ward's Business Directory, it's a nice piece of pie. Moss Motors earns about $29 million a year.

Observing the efficient Moss system at work gives some idea how the big numbers can be achieved. Modern computer science allows Moss operators to take phone orders and set up COD or credit card payment from 6:00 a.m. until 5:00 p.m. Pacific time each weekday, verify that the needed parts are in stock, and get them pulled, boxed, and to the freight door within 24 hours. Less, if you're desperate. Shippers UPS and Federal Express live practically next door and are well acquainted with the Moss Motors loading zone.

You don't need to rattle the office doors of Moss management for an explanation of the company's success. It's obvious when you see the operation. The warehouses — there are two in the US — have some 26,000 commonly needed different parts at the ready. Wandering down the brightly lit warehouse aisles is like coming home. In Goleta there are two levels, 14 rows wide and as long as a Joe Montana touchdown pass. On the gray shelves are wonderful things from the past. Three kinds of knock-off mallets, chromed running board trim, Sprite valve covers wrapped in pages from the London Times. The famous names are here, too: Connolly, Lucas, Wilton Wool, SU, and Girling.

One time-tested Moss philosophy is that replica parts — every part — must be as good or better than the original. Whether sourced to Britain, the United States, or Pacific Rim countries for manufacturing, the pieces are designed to look, fit, and perform to original specifications.

This alone is a story worth telling. How do you reproduce a part, let's say a bumper brace from an MG TD, that has been out of production for nearly 40 years? Simple. There's a 1952 TD sitting under a car cover in one of the Moss warehouses. Likewise a '48 TC, a Triumph TR4, and the 500,000th MGB, a black Jubilee Edition with less than 50 miles on the clock. Each of the Moss "company" cars, or others available to the engineers here and overseas, serve as a genetic pattern for new parts. Nothing is reproduced by Moss otherwise.

DEVOUT STAFF

Another asset is the staff. Sure, they know cars. British sports cars. They are not just people who got their jobs by reading Sunday's "Help Wanted" section. For example, take Carleen Wilhelm, the warehouse quality control supervisor. Her job is to check every order for proper content as it arrives at the end of the conveyor line. She is the Almighty of Correct Orders. Sure, anybody can count the number of lines on an invoice and match part numbers.

"One time-tested Moss philosophy is that replica parts — every part — must be as good or better than the original"

Life Line

"The story is told of a new groom who used his honeymoon as an excuse to drive from Ohio to do some shopping at Moss for oil sump gaskets and the like. Trouble was that the groom, no doubt inexperienced in the peculiarities of the female breed, had failed to inform his new bride of his real motive for the trip"

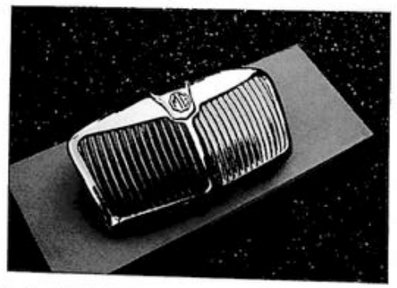
But Ms. Wilhelm knows the difference between TR3A and TR3B gearbox layshaft bearings, and that a Midget owner from Bippus, Indiana should really be getting one left-hand and one right-hand windscreen pillar gasket.

It isn't hard to figure out how valuable this brand of knowledge is to a parts business. Accordingly, Moss goes to extraordinary lengths to get the right people. To fill jobs that, arguably, a hundred people in town could at least technically perform, the company has hired and moved employees from as far away as Colorado, Michigan, and South Carolina. This probably won't come as any surprise, but the 130 Moss employees at the Goleta facility (including boss Goldman) also collectively own some 65 British sports cars. Employees are supported in the pursuit of their favorite hobby through discounts on parts.

Hiring out-of-state employees may be one way in which the Moss reputation grows. There are others. It seems that the Goleta headquarters, which also doubles as a retail outlet, is something of a destination for Anglophiles. Each year, as soon as Mr. Groundhog starts looking for his shadow, the disciples pack up the XK, TR4A IRS, or Bugeye and head west to Mecca. The story is told of a new groom who used his honeymoon as an excuse to drive from Ohio to do some shopping at Moss for oil sump gaskets and the like. Trouble was that the groom, no doubt inexperienced in the peculiarities of the female breed, had failed to inform his new bride of his real motive for the trip. He very nearly lost his manhood right there by the Lucas display.

MARKETING

Okay, suppose there are really a quarter of a million vintage British sports cars in America. And that there is something, greater or lesser, that needs fixing on nearly every one. Not every owner is going to show up at the sales counter with a shopping list on his honeymoon. So how should Moss go about making sure each one of those car owners knows to at least pick up the phone and call for help? The answer is as direct as a heat-seeking missile. Moss Motors, Ltd. uses a marketing strategy that is nearly as sophisticated as those used by The Sharper Image or American Express.



With the help of its Burroughs mainframe computer, Moss has generated a list of approximately 90,000 individuals with whom business has been conducted within the past two years, or who are known to own a British sports car. To these potential customers, Moss sends a quarterly tabloid newspaper dealing with club news and sale items, and a semi-annual price list that includes announcements of new parts. Catalogs for Austin-Healey, Jaguar, MG, and Triumph parts are free upon request. This, combined with specialty magazine ads, editorial coverage, and the non-stop presence of people like event coordinator Ken Smith and founder Al Moss at club functions, keeps the Moss name decidedly to the fore.

The company is marketing driven. As VP/General Manager Chris Kepler points out, "If Moss doesn't take these steps, somebody else will move in to do the job. It's a competitive business." But in fairness to Moss, the overall impression one gets is not that of the hungry marketing predator. Rather, it is that the whole organization is head-over-heels in love with British sports cars.

Certain achievements demonstrate this passion. Primary is the 1989 acquisition of the Classic British Sports Car Group, seven leading English companies involved in the Triumph and MG spares business. Now known as Moss Europe, Ltd., this resource further improves the US customer's access to hard-to-find parts. In its pursuit of the perfect restoration, Moss has also acquired Classic Car Colors, a firm specializing in matching obsolete paints. And most recently, two British competition parts companies have been added to the fold. Vintage racers will soon thrill to the availability of racing engine and suspension parts in the Moss catalogs.

The future appears bright enough for the California company. As long as there are sports cars in the United States, there will probably be a demand for a company like Moss Motors. For the simple reason that old cars — old British cars — are sure to need fixing. And even if they didn't, they have a certain way about them, a way of becoming part of the family, like a stray dog you want to buy toys for. Moss chairman Goldman puts it succinctly. "The beauty of the English car," he says, "is that the car needs you."

SCI

PHOTO BY JOHN STEIN

CRYOGENICS

WORD ON THE street is that Walt Disney is preserved in a frozen slumber, and maybe Elvis, too. After being deep-sixed in the ice box an instant after death, they and others lie in wait for magic cures for their heart conditions, their addictions, and their wobbly knees.

For the happy-go-lucky MGB, that time has arrived. British Motor Heritage, an English concern dedicated to the preservation of post-war British sports cars, has just released a brand-new unibody for the MGB, complete with all sheet metal. The implications are enormous. Not to the Disney or Presley families, perhaps, but certainly to legions of MGB devotees faced with the grievous truth that their beloved roadsters have finally rusted beyond repair. Or been flattened by a Taco Bell delivery truck.

In exchange for $3,995 plus shipping, Moss Motors, Ltd. (and any number of other Heritage outlets in North America) will deliver to your driveway one wooden crate containing what amounts to a brand-new MGB. A brand-new MGB minus engine. Minus running gear. Minus interior. Minus paint. You get the idea. But the very fact that this recreation exists is worth celebrating with a whoop. After nearly a decade of searching and haggling, British automotive archeologists secured some 750 of the original tooling pieces involved in making the MGB unibody and sheet metal. Fender dies, presses, and assembly jigs were taken from the rural Abingdon-on-Thames factory scrap heap and rebuilt in a sanitary new headquarters in nearby Faringdon.

There, brand-new MGB unibodies are being built today. "Shells," Heritage calls them. What's more, they are being assembled by some of the same men that built the original MGBs during its 18-year production run that began in 1962. Moss, a partner in the venture, tells us the shell is meant for MGBs ranging from 1962 to 1974. In other words, any destitute "chrome bumper" MGB may be reborn using the new unibody. (The later, rubber-bumpered 'B favored by the DOT used different front and rear body stampings.)

The idea, of course, is that you park your donor car and the new unibody side by side, then transfer the pieces one at a time. Sort of like changing clothes from one mannequin to another. We reckon most owners won't do things quite so directly. Why bolt tired old components onto a beautiful new shell? It's the perfect opportunity to build a fresh MGB from the ground up. Or a fire-breathing special. Eagle-eyed buffs will notice that the new unibody has the appropriate bulges in the engine bay to accept a 3.5 liter aluminum Buick/Rover V8. Hell, why not a Ford 289?

WE WONDERED how long it would actually take to do the complete swap. A demonstration at an English car show had a "new" MGB up and running 72 hours after the first bolt was turned on the donor car. That was by guys who had air wrenches, a well-stocked spares department, and who knew their craft. On the other hand, an English magazine recently carried a story of a bloke who spent 3,000 hours making the swap all by his lonesome to a bare unibody. Moss Motors advises its US customers that a good mechanic can expect to spend "several weeks" doing the job — plus whatever time is necessary to rebuild worn components.

We had a chance to sample one of the "new" MGBs in Southern California this spring. You know, nearly three decades after this car entered production, it still looks good. There really isn't a bad line on the body. We carefully lowered the top and hopped in. If this duckling looked resplendent in its Tartan Red paint and chromed wire wheels, it was utterly inviting with its black leather interior red piping and Moto Lita steering wheel.

Hasn't everybody driven or at least ridden in an MGB? Seldom does one get the chance at one so new as this. Honestly, the car is perfect. The awkward three-point harness fastens crisply. The manual choke knob is pulled, then turned to lock in place. The starter is activated. Uh, oh. There is that agricultural MGB exhaust note, shuffling out the tailpipe like the sullen drone of your English literature professor. Other sports cars of the period — particularly Alfas and Porsches — always did have the humble 'B on acoustics.

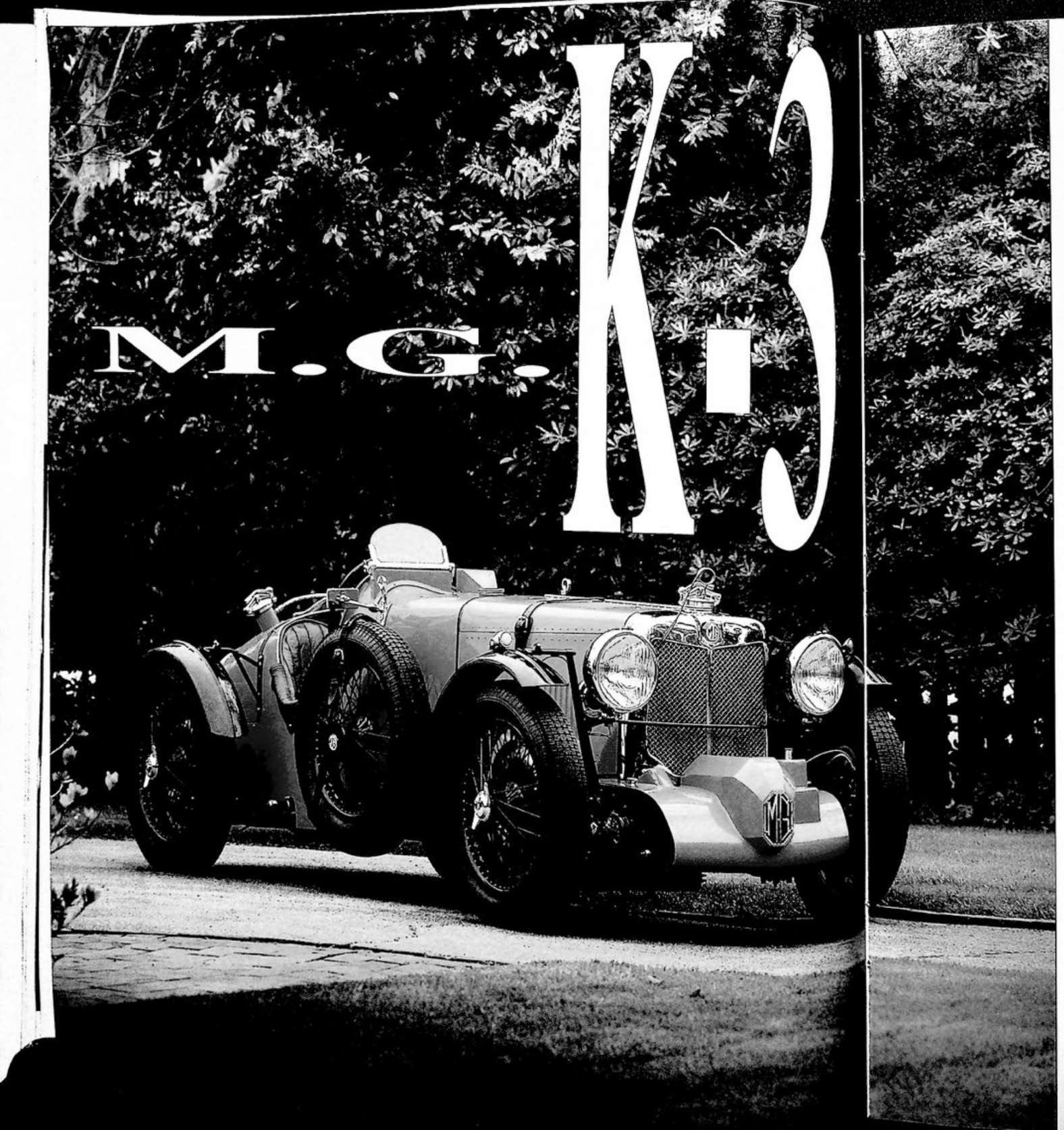
THINGS IMPROVE with forward motion. The MGB steers lightly and crisply, ride and road isolation are exceptionally good, and power is adequate for outsprinting traffic or just sporting about. On the freeway, the engine turns a relaxed 3,240 rpm at 60 mph. This particular car, a 1972 model, has overdrive attached to its all-synchromesh 4-speed. Pulling back the engagement lever drops 500 rpm off the tach for cruising. So equipped, you could cross the country in reasonable comfort.

By contemporary standards, the truth is that the MGB is no Car of the Year. It is to current sports cars as a hot air balloon is to a Citation jet. Both get you there, but the MG's relaxed demeanor helps you savor the experience. There's a marginal heater, three little windshield wipers to combat the Great Flood, and no radio. What the 'B lacks in sophistication, it makes up for with charm.

Thanks to the British Motor Heritage body shell, the world is assured of always having a few MGBs around. And affordable ones, at that. Moss tells us that a complete restoration using the new shell and new or rebuilt secondary equipment — and your labor — should cost about $11,500. That is a lot cheaper than cryogenics.

SCI

M.G. K-3



SPORTS CLASSIC

For a few brief years in the early thirties before the bean counters at Morris took control, Cecil Kimber's M.G. firm built some of Britain's most innovative and technically interesting sports cars. The supercharged K-3 was the company's greatest achievement, taking a class win in the Mille Miglia and an outright Ulster TT victory in the hands of Tazio Nuvolari. ***John Retsek*** *looks at the race record and the technical details of Morris Garage's finest. Photography by* ***David Gooley****.*

Cecil Kimber just wanted to offer something a bit sporting and maybe generate a little floor traffic at the Morris Garages' Oxford showroom. Kimber was the manager there, but he was also a writer, an artist, and as it happened, the genius force behind what is likely the world's best loved sports car company. The Morris Garages was a factory-owned dealership for the cars of the William Morris Company, located in nearby Cowley.

Kimber designed a "chummy" body (an open 2+2-like configuration) for the Cowley, Morris' base model. The Cowley was a sturdy, low-priced car, distinguished only by its bull-nosed radiator. Kimber called his creation the Morris Garages Chummy and it sold well. When Morris started to make a factory version of the Cowley Chummy, Kimber and Morris Garages had to move on to larger, more expensive cars. The M.G. Specials became Morris Oxford-based, and Vauxhull 30/98-inspired. They sold well enough to the right people, who drove them to the right places.

Morris' expansion continued, and in 1927, he bought the bankrupt Wolseley Co., and M.G. development took a decided turn upward. Wolseley had developed a wonderful 847cc overhead cam four that was put to use in Morris' new Austin 7 fighter, the Minor. Kimber soon drove a prototype, and knew that it would be the basis for a new small sports car. The M.G. Midget was an immediate best seller in England, with excellent performance and a low price.

The Midget evolved as a racer, and a 750cc class record breaker. Supercharging was added and the ultimate racing Midget, the C type "Montlhery," appeared in early 1931. It was a beautiful and purposeful car, and served to inspire a whole new line of Midgets, the J series, introduced in 1932. The look of the Js was carried through all M.G.s until the introduction of the MGA in 1954. Also in early 1931, Kimber introduced the Magnette K series. Evolved from the Magnas, these cars used an 1100cc overhead cam six developed from the Wolseley Hornet.

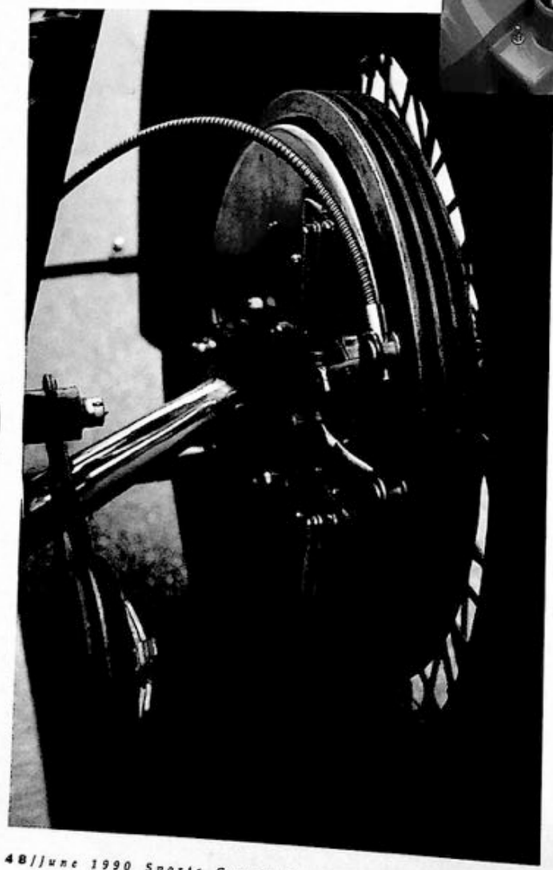
ENTER THE K-3

The fortunes of English race cars had fallen on hard times. The demise of Bentley had ended England's participation in first–to–finish battles in most international races, and most English racers were driving European cars in English events. Kimber had tried to build a Bentley substitute in 1930, the 18/100 Mark III, but it suffered from lack of development. The small M.G. operation just did not have the money to see the "Tigress" project through to success. However, the Midget's 750cc wins and records indicated that M.G. could now mount a serious effort in the popular 1100cc class — the Voiturettes.

First dominated by the French Amilcars and Salmsons in the twenties, and by Italian Maseratis in the thirties, it was international competition. But it appeared to Kimber to be within M.G.'s range. It is important to note that in 1932, the M.G. factory had been racing for only three years.

When the K series was introduced, it featured an open two-seater configuration designated K-2. There were, in typical M.G. fashion, two engines and two transmissions available. The K-2 (K-B) had an 1100cc engine with a standard 4-speed non-synchro transmission, while the K-2 (K-D) used a 1,271cc engine with the Wilson-ENV 4-speed pre-selector box featured in the rest of the K line. The K-2 was not a popular model, with only 16 of the K-Bs and four of the K-Ds sold. Despite its sporty and handsome bodywork, it was just too slow to attract sporty drivers.

Supercharging had made the Midgets into international winners. Supercharger pioneern Ernest Elridge had, along with George (G.E.T.) Eyston, built a supercharged M.G. Special, the EX 120. It was the first 750cc car to break 100 mph (103.13 for the five kilometers in 1931). Kimber liked the idea of superchargers, and gave the okay to supercharge the K-2. It was intended to be a sports racer, but it still featured full road-going equipment, like fenders and lights. However, Voiturette Grand Prix racing was also planned — with the fenders and lights removed, but with the light two-seater body remaining. It was designated K-3.

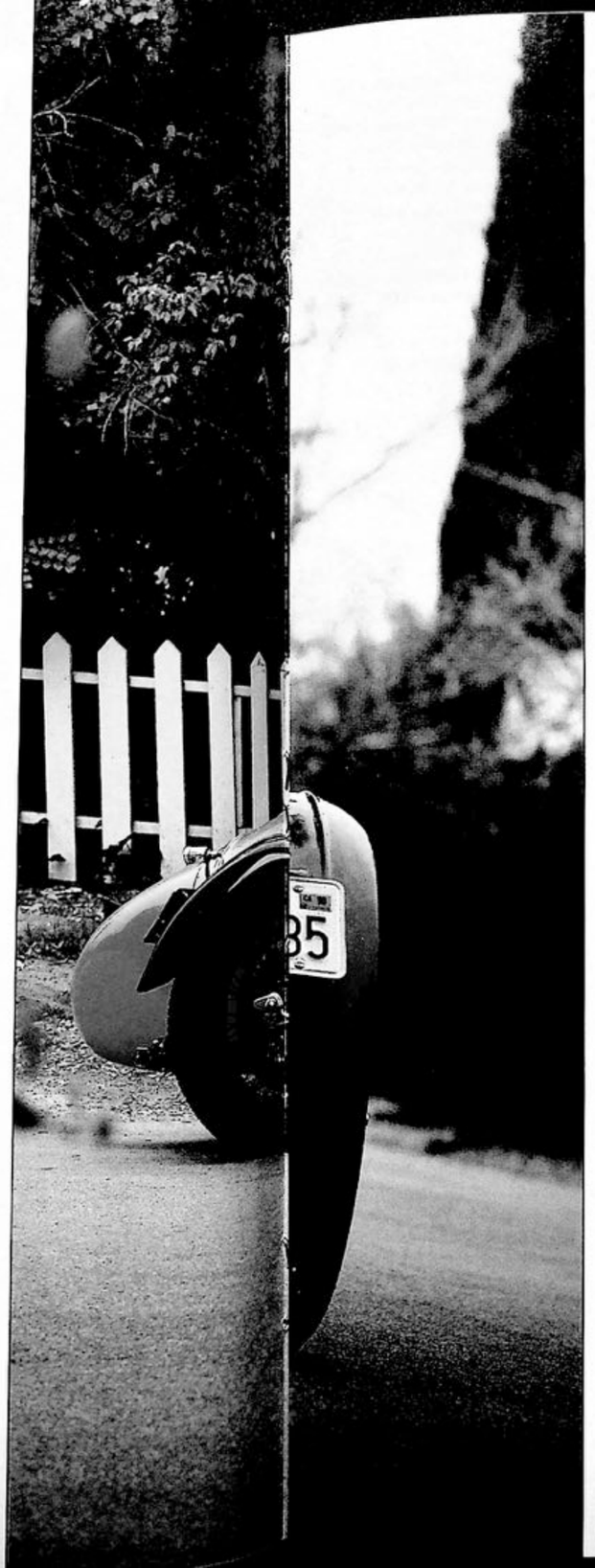


TECH DETAILS

Good thing that the body was light (100 lbs. for 1933 and 60 lbs. for 1934) because for an 1100cc race car, the chassis was heavy. The frame, underslung at the rear (the rear axle is on top of the frame), was a typical M.G. twin side member with tubular steel cross braces, with a pressing at the rear and a K-shaped strut in the center of the chassis. Simple and relatively stiff, but as noted, not light.

The K-3 suspension was also typical M.G with flat, taped, and bound half-elliptic springs all around. The front beam axle was controlled by one pair of Hartford Adjustable Duplex shocks aided by cable torque braces from the kingpins to the chassis. The live rear axle assembly was a large cast-iron piece, but it was located only by its springs and two pairs of Hartford Adjustable Duplex shocks per side with their arms parallel with the axle side sleeves. A straightforward set-up with little to go wrong, but heavy for a Voiturette racer.

The special aluminum body, however, was more or less contemporary racing practice similar to the Montlhery Midgets. It had cut-down sides and no doors, with easily removed cycle fenders, and the M.G. grille. An aluminum belly pan was also fitted to reduce underbody drag. The first cars had slab fuel tanks with a spare tire mounted on the back much like post-World War II series M.G.s. However, the classic K-3 body featured a beautiful, streamlined racing tail that held a large 27.5 gallon gas tank and a 3.0 gallon oil tank. These racing bodies were also narrower than the slab tank bodies. As development continued, bodies got lighter and many K-3s ended up with single-seater bodies, the most notable being G.E.T. Eyston's Magic Magnette, also known as the EX 135. Eyston's car was also called the Humbug, because it was painted in the brown and cream colors of a popular British candies called Humbugs, although no commercial sponsorship or endorsement was involved.



Heavy, fast cars need good brakes, and the K-2's standard 13-inch drum brakes were soon replaced by 1934 high-tech "scissors" brakes that used two cam levers, one operated by the inner cable and one by the outer casing. This effectively doubled the force of application and, combined with roller cams to operate the shoes, made for a fairly light pedal. The brake drums were of electron (an aluminum alloy) with screwed-in steel liners. Great care was taken with adjustment to make sure that the shoes were properly centered in the drum so that even wear and maximum contact area was achieved. The brakes could also be adjusted a bit with a small wheel in the cockpit. When set-up correctly, the system worked well. But because of its complex design, it required an expert hand. The 13-inch drums ran inside 19-inch wire wheels fitted with 4.75 section tires.

Another innovative chassis feature was the cam-type steering that used an M.G.-patented divided track rod layout. The drag link attached to an idler arm to the left of the axle's center. Two short track rods were also attached to the idler. The idea was to reduce kickback with no loss of feel or accuracy. Like the brakes, it was a complex and expensive system; however, it seemed worthwhile, especially on rough surfaces.

The K-3's 1,086cc six cylinder engine was of humble production car origins, and compared to the all-racing designs used in some Voiturettes, rather crude. The head and block/crankcase were high chromium cast iron, and the machined and balanced crankshaft ran in four plain bearings. Alloy three-ring pistons were used with steel connecting rods also running in plain bearings. The bore was 57mm (2.28 inch) and the stroke 71mm (2.84 inch). The head was a 12 port single overhead cam design with two vertical valves per cylinder, each with three springs. They were operated by fingers riding on the bottom of the cam. The cam was driven by a vertical shaft through spiral bevel gears at the front of the engine. The generator was also built into the cam driveshaft. The water pump was driven by a cross shaft at the front of the engine, as was the B.T.H. Polar Inductor Magneto.

The oiling system was full-race, using a remote tank — at first in the dash (2.0 gallons), then later in the tail (3.0 gallons) — and a 2.5 gallon ribbed cast elektron (aluminum alloy) sump. The level was maintained by an automatic float feed, and the system used a large gear-type oil pump driven off the crankshaft and a fine Tecalemit filter. This was a heavy duty system, and it served the engine and the supercharger well. Because the cam cover extends forward to enclose the cam driveshaft and gears, the engine looks longer than an 1100cc six should be. However, it is a big sturdy engine, like everything on the K-3.

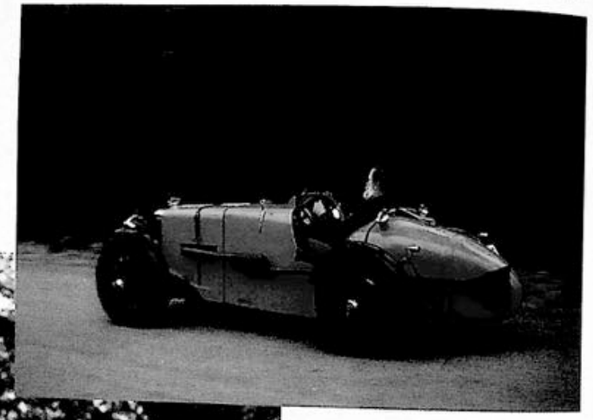
And a good thing, too, because the supercharger could almost triple the engine's power output. Both Power Plus #9 and Marshall #85 blowers were fitted, both driven off the crank via a steel shaft and universal joints. The Power Plus was geared to 3/4 engine speed, but the Marshall ran at 1:1. Both were Roots types, but the Power Plus used an eccentric vane, and the Marshall, twin vanes. The Power Plus, with 14-16 lbs. of boost, was preferred for speedway racing, and the Marshall, with 12-14 lbs., for road racing. Both produced about 12 pounds of boost, with a 5.75:1 compression ratio. A fuel mix of 25 percent ethyl gasoline and 75 percent benzol was required. Output at these specifications was over 100 horsepower at 6,300 rpm, but over 120 horsepower was possible by tuning for exotic fuel blends and raising the compression ratio.

A single SU carburetor was normally used, but twin carbs were tried. The whole blower/carb assembly was carried out in front of the cam between the frame dumbells. It certainly seemed vulnerable, but there was nowhere else to put it. If you hit something hard enough to damage the blower, you likely would have damaged the front end enough to retire the car anyway. Another good reason for the forward position was that the coolest possible intake air was used, an important consideration on high-boost supercharged engines. The induction pipe from the supercharger to the intake was also finned, but not enough to act as a real intercooler. The fuel was fed by SU electric pumps except in full race tune, when the car ran without a battery and a hand pump was used. The fuel system also used a Kigass spray to assist in starting by squirting gasoline directly into the intake.

The M.G. "Light Six," as the K series engine was called, was developed partly because Kimber wanted to use the Wilson-ENV pre-selector gearbox. The friction bands that select the gears also serve to take up the drive, but do

so only at low rpm. If idle speed is too high, "pre-selector creep" sets in, hence a low smooth idle is required. In the days before rubber mounting, that meant a six. All of this is of little concern in a race car, but the quick and easy shifts of the Wilson made it a good choice for the track. The gears were selected with a lever running through a straight serrated quadrant and engaged by a foot pedal. No clutch was required, and the driver could keep both hands on the wheel during cornering that required up or downshifts and Wilson-ENV boxes were fitted on race cars well into the fifties. They were, like some of the other components of the K-3, complex and required a specialist to work on them. And, of course, like most components of the K-3, they were also heavy.

The completed car was much greater than an examination of its components could ever suggest. Its weight was well carried and balanced, and the source of much of its strength — strength that allowed it to use its supercharged power with outstanding reliability. Depending on the body, racing weight was between 1,500-1,800 lbs. The wheelbase was 88.5 in. and the track a wide (for the time) 48.75 in. A really small car. It came in one color, British racing green (any M.G. color or combination could be special-ordered) with matching leather seats. There was no speedometer, but the dash was lined with a complete array of instruments, including a boost gauge, oil temperature and pressure, water temperature, and ammeter. The exhaust system was fitted with a Brooklands "Silencer" — not really a muffler at all — and the required fishtail pipe end. This race car sold for 795 Pounds ($3,975) and almost all 33 made were raced — raced better perhaps than any other 1100cc cars before or since.



RACE RECORD

Lord Howe, the old man of British racing, had just about given up racing British cars. His personal stable included Caracciola's 1929 Tourist Trophy-winning Mercedes 38-250 and a 1750 TT Alfa Romeo. But the K-3 gave him hope, and he decided to enter a three-car team in the 1933 Mille Miglia. Howe's considerable resources made this a first class effort, and he was able to get George Eyston of M.G. Midget fame and Bentley Boy Tim Birkin to drive. Italian Count "Johnny" Lurani joined Eyston and another Bentley driver, Bernard Rubin, co-drove with Birkin. Lord Howe would drive the third car with Hugh Hamilton, a young driver who would soon become another M.G. racing hero.

The K-3's competition debut had come earlier, in the 1933 Monte Carlo Rally, where G.R.W. Wright won the Mont des Mules hillclimb section. The car had also run some club hillclimbs. But the Mille Miglia, perhaps the world's toughest race, would also be its first. Howe's exacting preparation and the inherent strength of the K-3 notwithstanding, the M.G. team was a long shot against the experienced Italian 1100cc teams from Fiat, Bianchi, and Maserati. Birkin was the fox, jumping to an early lead in class, and the opposition started to blow up trying to stay with the flying K-3. After the first 330 miles, Birkin had a considerable lead in class, but the car soon dropped a valve. G.E.T. Eyston and Johnny Lurani went on to win the 1100cc class and were the first to finish the race — the first time in the Mille Miglia that an 1100cc car was not overtaken by a big car starting later. Lord Howe and Hugh Hamilton finished second, a minute behind. Birkin/Rubin also finished on five cylinders — a tribute to the K-3's strength and Birkin's perseverance. The M.G.s captured the team prize — no other team had more than one car running. Not since the glory of Bentley at LeMans had English racers looked this good. The winner's time of just over 18 hours was a class record, and while the first two cars ran flawlessly, there were problems with the lighting, which likely slowed the K-3s in the mountains.

But it was a splendid victory, the first of many, although a repeat attempt at the Mille Miglia the next year was a failure. The K-3 of Eddie (E.R.) Hall won the Brooklands B.R.D. 500 mile race outright with brilliant tactics orchestrated by his girlfriend Joan (later his wife), who served as his K-3 co-driver in the 1934 Mille Miglia. She was not, however, the first woman to race a K-3. Earlier in the year, a Mrs. Wisdom finished third overall in the International Trophy Race at Brooklands. (Lord Howe was fourth and Hall second.) Also, Psyche Altham — K-3 ace Whitney Straight's girlfriend — did well driving Straight's car in women's events in 1933. Straight himself won the 1100cc class in the Coppa Acerbo by 0.20 seconds over a Maserati.

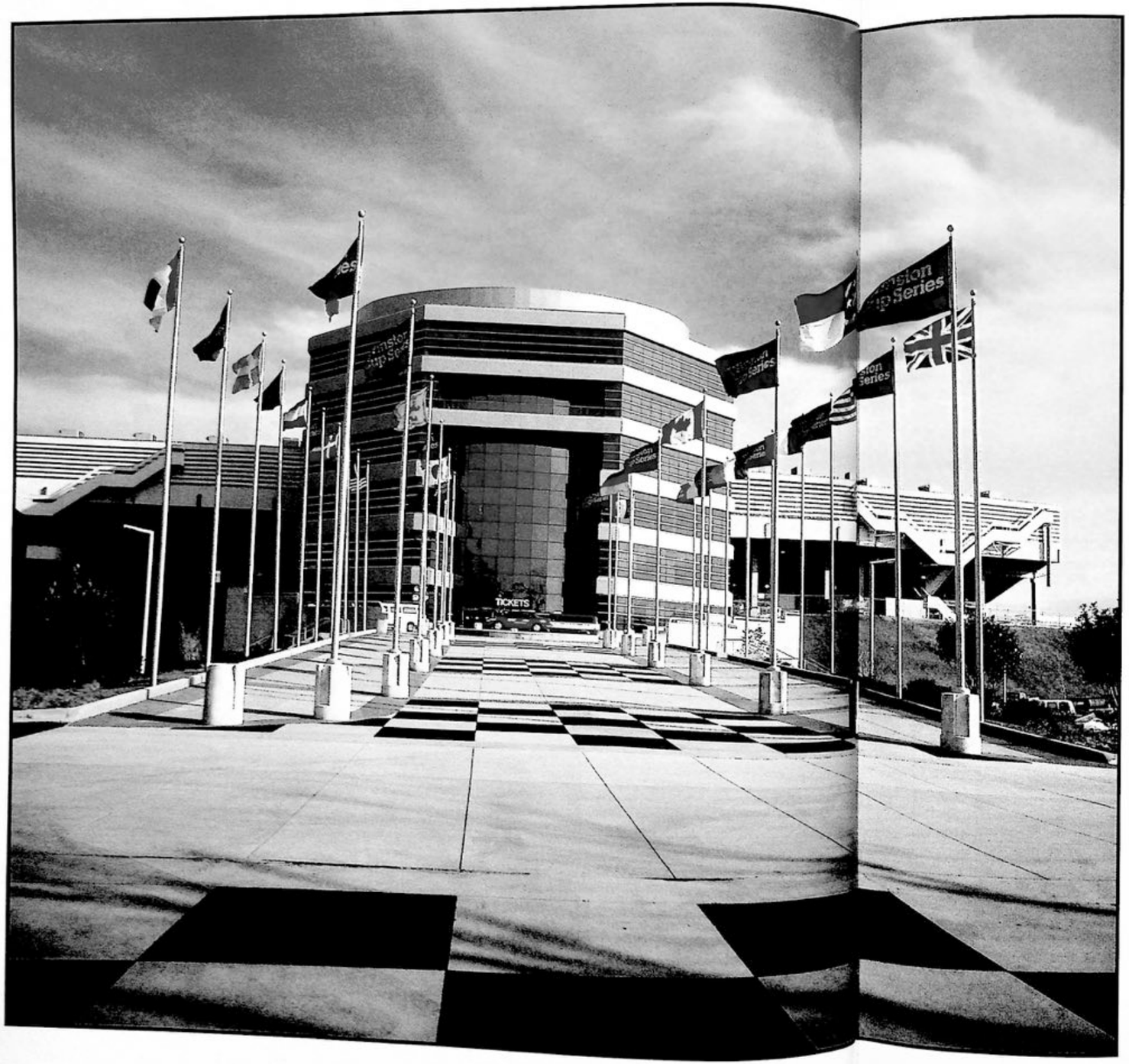
The K-3's most exciting victory, the 1933 Ulster Tourist Trophy, came in the hands of an Italian, Tazio Nuvolari. The master had never driven a car with a pre-selector gearbox, but soon he began breaking lap records. He passed Hamilton's M.G. Midget for the lead, but continued to push the K-3, breaking records lap after lap and winning the fastest Ulster TT ever, with Hamilton a close second. Nuvolari's record stood for 17 years. Nuvolari loved the K-3, and although he never raced one again, he became part of its legend. So did many of Britain's finest drivers. Richard Seaman, the talented young racer who later drove for the Mercedes-Benz Grand Prix team, competed in a K-3. Like all racing cars, the K-3 was modified, improved, and bastardized. As noted, many got special Monoposto bodies. Huge superchargers with boosts above 20 lbs. were fitted to engines with custom cranks, pistons, and rods. The scissors brakes were replaced with hydraulics, and the K-3s continued to win 1100cc races into the fifties. They are now the terror of vintage events.

M.G. stopped racing in 1935. The William Morris Co. had become the Nuffield Organization, and M.G./Morris' new managing director, Leonard Lord — a ruthless production engineer — closed the M.G. design and racing department. The Wolseley-based overhead cam engines were dropped — too expensive — and Morris pushrod units specified for all M.G.s. Kimber was stunned, but soon set about making a new breed of M.G.s with the same dedication that produced his racers and record breakers. The K-3 never got a chance to evolve into the Grand Prix car it almost was, but it stands as M.G.'s unique contribution to the world's greatest race cars.

The K-3 pictured here is owned by Gary Byrd, a Voiturette lover who also owns an Amilcar CGSs (SCI, September 1988) It is not one of the original 33 K-3s, but it is an absolutely historically correct car, down to its scissors brakes. It is street licensed, but is also raced in vintage events. It is tuned to run on gasoline, but it's still a fast 1100cc car; according to Byrd, it's "as fast as a good MGB." Byrd reports that the Wilson gearbox makes fast shifts and that the scissors brakes stop the car quickly and smoothly. "It really is a wonderful car to drive and race."

And a beautiful one to look at — every detail is perfect with little things like the cable that holds the tail in place and the original equipment M.G. steel braided fuel lines snaking out of the huge filler caps, the louvered hood and leather strap, and the Brooklands windscreen. You see just enough of the mechanicals — the exhaust, the suspension, the top of the SU carb next to the bulge of the supercharger — that the body seems just barely able to contain the strength and power of all that complex machinery. One could look at the K-3 for hours and still not see it all — or tire of looking.

SCI



COMPETITION

For motorsports journalists, the racing season begins with the Charlotte Motor Speedway Winston Cup Media Tour. Writers, photographers, and television and radio broadcasters board buses that carry them to race car shops all over the Carolinas. They attend seminars on such subjects as the future of NASCAR racing and pit stops. They eat, drink, and become merry at breakfasts, lunches, and dinners with the stars of the sport. Ultimately, they are the guests of mastermind promoter and Charlotte Motor Speedway Vice President Humpy Wheeler. By ***Jonathan Ingram.*** *Photography by* ***Mike Slade.***

DOWN HOME

The world's most popular motorsports circuit is better known as the NASCAR Winston Cup series. As with most racing series, this one is like a small town that moves from place to place, race to race. The Winston Cup is different, however, because nearly all of the participants reside between races and seasons near one large Southern town — Charlotte, North Carolina.

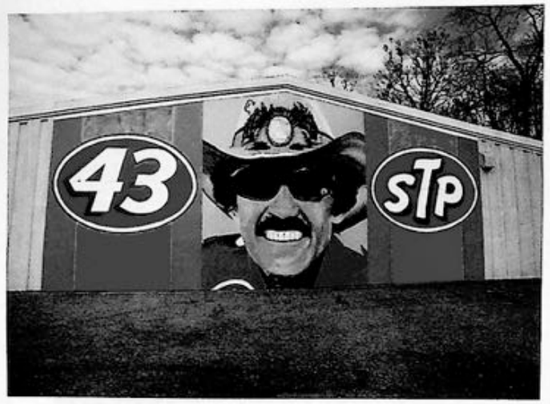
While NASCAR's offices and biggest race may be located in Daytona Beach, its home is really in the Carolinas. There, stock car racing was born in the glimmer of moonshine, and the first races were between bootleggers driving '40 Fords out of the mountains and government agents armed with shotguns. Nowadays, the fastest men in the Carolinas haul Winston Cup race cars out of this neck of the woods in big rigs with multi-million dollar sponsors. Within a hundred miles of the Queen City, one can find nearly every major stock car racing team's shops.

US motorsports journalists spend at least one week a year in the Carolinas as guests of a guy called "Humpy." To find the tour's host and founder, one must enter the Taj Mahal of US motorsports, otherwise known as the Charlotte Motor Speedway. The shimmering edifice of the Smith Tower stands where only 14 years before was a sinkhole of mud behind a row of open-air grandstands originally built in 1960. The Tower is a symbol of how far and how fast the sport of stock car racing has grown. Inside, there is a handsomely appointed Speedway Club, offices, luxurious sky boxes, air-conditioned club level seating, covered grandstands, and even condominiums overlooking Turn One.

While majority stock holder Bruton Smith is the business engine behind the 1.5-mile Charlotte oval, Vice President H.A. "Humpy" Wheeler is the driver. As one might expect, Wheeler is an energetic man. Short in stature, Wheeler has the aggressive bearing of what he once was, a bantamweight boxer. Under his blond hair, the electric blue eyes often have the faraway look of a guy whose mind is on the future. A one-man think tank, the former journalist and Firestone PR man is a schemer and a dreamer.

Wheeler is famous for two things: making predictions about the sport of stock car racing, then making those predictions come true.

While he was still a Firestone Tires PR representative, for example, Wheeler predicted the present modern state of the Charlotte facility in an article written 15 years before it became reality. Wheeler correctly anticipated 20 years ago races that pay $200,000 to win — which is what the winner of The Winston all-star race at Charlotte took home



in May. He also predicted speeds of 200 miles per hour. And that second generation drivers would become some of the sport's biggest stars. This when Dale Earnhardt, Davey Allison, and Kyle Petty were still toddlers.

HUMPY

As befitting a man of blue sky thinking, Wheeler's office is in a corner of the top floor of the Smith Tower, surrounded by glass on two sides overlooking the track.

The Media Tour began during one of Wheeler's think tank sessions with his staff. It was suggested that the track invite writers from all over the country to attend what would be much like an off-season convention. The only problem being that it would promote the season's first race — the Daytona 500. Charlotte's first Winston Cup date is the Coca-Cola 600 on Memorial Day weekend.

"I said, 'That's good,'" recalls Wheeler. "Because the Daytona 500 is the best thing we have to promote ticket sales. We sell more tickets after the Daytona 500 than any other time of year."

Wheeler, whose present facility holds 100,000 comfortably, may have sold more stock car racing tickets than any man alive. He has his methods. He once promoted his World 600 race into the same headlines as the Indy 500 for two weeks by the ruse of having a panel of NASCAR star drivers vote on whether Janet Guthrie could enter the stock car race if she failed to qualify at Indianapolis. It was a preposterous notion, since qualified drivers are free to enter as they please. But Wheeler was skillfully riding the ragged edge between the departure of chauvinism and the arrival of the women's liberation movement.

Behind the scenes, Wheeler ensured Guthrie could race at Charlotte by acquiring a race car for her and persuading a local woman banker to stand in as the team owner. Then he prayed Guthrie would fail to qualify at Indy — to better boost attendance at his event. The vote of the drivers on the special panel, of course, was pre-determined by Wheeler.

So Humpy was among the first to unflaggingly embrace the idea of a woman driver meaning more women fans — and more ticket sales. Just as he was the first to embrace the idea of better facilities making stock car racing more amenable to not only women, but the upper-middle class.

Wheeler succeeds because he's not selling the oil of snake, but a tried and true formula. "The stock car is the least expensive race car in the market today," he says. "No on-board computers or on-board air jacks. Everything is simple. What has been done is the theory of keeping it simple. And the costs have been kept down. If a driver wrecks a Formula One car, it's like losing a villa on the French Riviera. We've kept the drivers relatively safe, but above all we've kept the excitement of close racing.

"Like it or not, what drives the American sports market is contact. Look at the NBA where everything is legal underneath the basket. The NFL is the greatest example of controlled mayhem that we have. They've done a good job of dressing it up and tying ribbons on it."

Wheeler is just warming to his favorite subject. "What NASCAR is doing with simple rules means you don't have the breakthroughs in technology like you see in Formula One, Indy cars, or IMSA. That sends some guy ahead by a lap or a couple of minutes. He may be the sixth best driver there. So all of a sudden, designers instead of drivers are taking over as the basis of rule making and then a sport becomes too complicated."

> "The larger than life portrait of "King Richard" that greets entrants to the Petty Enterprise compound is a reminder that the man is an icon in his own time"

PURE AMERICANA

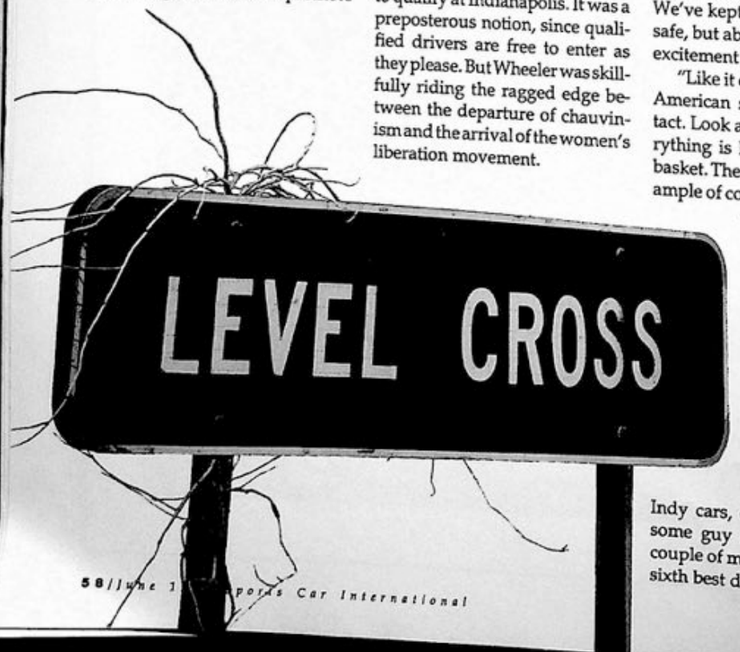
It is clearly the emphasis on drivers that has created a near-cult following among the legions of stock car fans. And not surprisingly, Wheeler believes he knows why. "One of the answers to why the sport is so popular and drawing so many fans is that

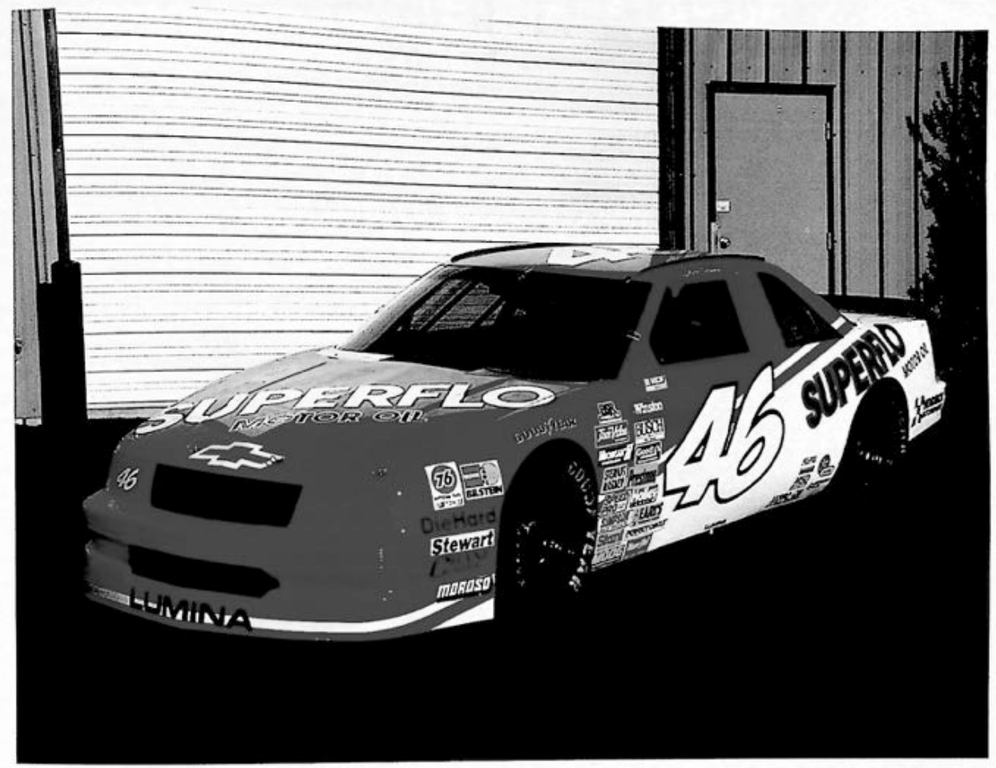
we're the last form of racing in this country that is purely American," he says. "There's not a part on these cars that is not made in America. And the drivers are more scandal-free than any of the other athletes today. We don't have stars that rape co-eds or snort cocaine and all the other foul things now in the sports pages every day.

"I think there are enough Americans who want role models," continues Wheeler. "Richard Petty is a throwback to the thirties and forties. He doesn't do anything wrong. He doesn't run around. He doesn't drink — except for an occasional glass of wine. And we're free of the labor problems that have affected every other sport in the US."

Armed with Wheeler's State of Stock Car Racing address, the tour awaits. One of the stops this year is Level Cross, N.C., home of Petty Enterprises. The larger than life portrait of "King Richard" that greets entrants to the Petty Enterprise compound is a reminder that the man is an icon in his own time. Not only is he revered by a multitude of fans, but every participant in the sport would likely kiss one of his seven championship rings if he asked. He's the Babe Ruth of the sport, the man whose popularity lifted it from a country bumpkin game to its present high-rolling status where the Winston Cup champion now takes home a check of $1 million from a banquet in New York City.

Of all the stops on the tour,





"Wearing his traditional wrap-around sunglasses, Petty has the easy-going charisma born of self-confidence as well as 200 career victories and seven championships"

Photo Above: Chevrolet Lumina built in Charlotte by Hendrick Motorsports is designated for Tom Cruise, playing Cole Trickle in the film "Days of Thunder"

there is an extra air of excitement about this one. Wearing his traditional wrap-around sunglasses, Petty has the easy-going charisma born of self-confidence as well as 200 career victories and seven championships. His father, Lee, earned three NASCAR titles before him. He enjoys his fame, but is not consumed by it, wearing it as easily as his feathered hats.

> "In addition to being so American in mechanical make-up and driver participation, the sport is typically American in its openness"

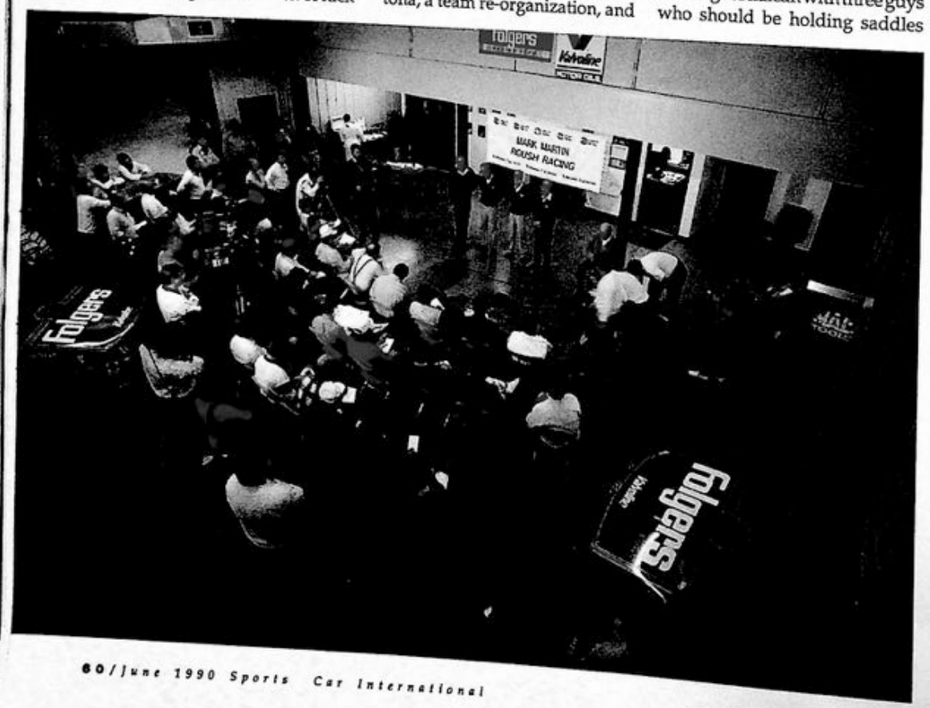
The man who can do no wrong, in the words of Wheeler, is doing something wrong in the minds of many. He's spoiling a lifetime of success by the last five consecutive seasons without a win. Sitting in the museum of Petty Enterprises, surrounded by a Plymouth Superbird, a Dodge Charger, scads of trophies, and a huge Chrysler hemi-headed engine, the emotional question is begged: is Petty himself a museum piece? Has the sport he so magnificently helped build passed him by? Is The King'sera over?

After a splendid lunch of hickory-smoked North Carolina barbeque, which is to pig what moonshine is to corn, Petty is prepared for a detailed answer at long last on why he doesn't wish to retire at age 52. There is a hush among the gathered, uh, congregation.

"The further down they get me, the further from my mind any retirement gets," says Petty. "If I get back on top, then that may change.

"When I retire, I want something to fall back on," he continues in his smokey drawl. "Right now if I retire, the business is not where it needs to be. We're trying to get it to where it can function without Richard Petty."

The interview is a revelation for many members of the media. Most arrived with doubts about Petty due to some pathetic showings on the track in 1989, where he failed to qualify four times. But Petty talked about a new engine program, which enabled him to run 194 miles per hour at Daytona, a team re-organization, and his new training regimen. Mostly, Petty was just his charismatic self. When the buses are re-boarded, it seems as if victory 201 is no longer impossible. "The King" of NASCAR lives after all.



SPRING TRAINING

And that's what the media tour is all about — a sort of spring training for stock car racing. A promotional device where hope springs eternal for drivers, teams, manufacturers and, above all, sponsors. Sponsors that now spend up to $10 million per year to promote their products through NASCAR's premier series.

It used to be considered impossible for someone outside of the South, or outside of the stock car fraternity, to make it big in the sport. Bill Elliott and his Georgia brothers Dan and Ernie proved you could join the fraternity in a big way without working a single day for any other team. Up the road from Level Cross, another guy is proving you can make it big in this sport without a drawl.

When team owner Jack Roush, his driver Mark Martin, and team manager Steve Hmiel greet the tour, it looks more like a post-race meeting at Hialeah with three guys who should be holding saddles and wearing silks. Each of them hovers around five feet tall. But in just their second year as a team, the three principles of Roush's stock car team have established themselves as big threats to win every Sunday. Driving Ford Thunderbirds, Martin won his first race in October last year, and finished third in the Winston Cup championship point standings.

The team's big, if not tall, advantage is Roush. He builds human racing systems — teams —and engines with equal genius. The former drag racer and Ford engineer is a classic example that racing has always been a home to misfits with outsize mental ability and excess physical energy. It's the only environment where some geniuses can be comfortable. So after beating everything in sight in the SCCA's Trans-Am and IMSA's GTO classes as a Ford factory representative, Roush went looking for another challenge.

One reason Roush has taken the Winston Cup series by storm is that he has more dynos in his engine development facility outside Detroit than Richard Petty has STP Pontiac race cars. Much of the work there is devoted to contract work for manufacturers. But the work that captivates Roush concerns the age-old 358 cubic inch, carbureted V8s used in his oval-bound Thunderbirds. "What I try to do is get the guys in Detroit to respond to what we learn down here as quickly as possible," explains Roush. "And we learned some things that other teams could not learn."

Roush enjoys the anti-deluvian NASCAR rules of the tube-frame cars. "There's no other series in the world that gathers the fan attention that this one does at a fraction of the cost," he says. "The cost of the hardware is minimal. We won the IMSA GTO championship last year and the program cost three times as much."

The contrast between the old — Petty Enterprises — and Roush's new Folgers-sponsored team is significant. NASCAR may stick to a tried and true formula, but an age of specialization and sophistication is already underway with men like Roush on hand. Or like Alan Kulwicki, a college graduate from Wisconsin who won his first Winston Cup race in 1988 driving his own Zerex Ford Thunderbird. Increasingly, schooled engineers will play a larger role as will participants from outside the Old South.

CHARLOTTE

It is still likely, however, that most of them will have headquarters near Charlotte. Other stops on the tour include visits with the teams of defending Winston Cup champion Rusty Wallace, three-time champ Darrell Waltrip, Cale Yarborough, Petty's son Kyle, and Kulwicki, among others. By the time the tour's three days are over, nearly every driver on the circuit has been available for an interview and 12 shops have been visited. In addition to being so American in mechanical make-up and driver participation, the sport is typically American in its openness and honesty.

Meanwhile, Humpy Wheeler is looking farther down the road. He will introduce a Russian-built Lada thrill show prior to his May race direct from Moscow complete with Russian drivers. "Sort of an Ivan Chitwood review," he says with a smile.

What Wheeler really has in mind is an international series built on the American oval racing concept. "Who knows how many major car companies we're going to have eventually?" he asks. "There may be only six or seven in the world eventually. Just recently there was the the merger of Ford and Jaguar. It would be nice to see a Jaguar sitting out there next to a Chevy or a Ford. But only if we can do it within the confines of the way the rules work now. We still have another American manufacturer not out there, Chrysler. I'd like to see them in it.

"What I would like to see from a promoter's standpoint is to have your cake and eat it, too," continues Wheeler. "Have six or seven companies from all over the world sitting down there ready to take the start of the Coca-Cola 600. We already have the flags up from every country where racing takes place outside at the entrance." Wheeler pauses, then adds with justifiable authority and excitement: "I can't wait to see it." SCI

RESULTS&RUMORS

SENNA, PROST WIN, ALESI SHINES

In the World Championship season opener at Phoenix, the establishment came out on top, but some upstarts made their presence known. Ayrton Senna won in the McLaren-Honda yet again, but the grid and results featured several surprises. Jean Alesi led the race from fourth on the grid in his Tyrrell-Ford, then had the gall to re-pass Senna one corner after the Brazilian took the lead! The young Frenchman took second place. Although he did not finish in the points, surprising Pierluigi Martini started second on the grid in his Minardi-Ford behind Gerhard Berger's McLaren-Honda on pole. Berger failed to finish as did the Ferraris of Alain Prost and Nigel Mansell, but Nelson Piquet showed spark in his Benetton-Ford debut, finishing fourth.

In the season's second race at Interlagos, Brazil, Prost took his first win for Ferrari, setting up a possible season-long joust with ex-McLaren teammate Senna, who collided with Satoru Nakajima while leading. A full season preview of the Formula One scene will appear in the next issue of SCI.

NISSANS TRIUMPHANT

The Nissan Performance Technology team extended its IMSA Camel GT winning streak to three with victories at Sebring's 12 Hour and at Road Atlanta. Bob Earl and Irishman Derek Daly won the venerable Sebring event in the Nissan GTP ZX-Turbo on St. Patrick's Day. Former CART and Formula One driver Daly thus scored his first victory since a Formula Two race in 1979. At Road Atlanta, Geoff Brabham and Daly held off stiff competition from Jaguar and Toyota. Seeking his third championship on the trot, Aussie Brabham returned to the Camel GT points lead ahead of Jaguar drivers Davy Jones and Jan Lammers. Despite the success of the current car designed in 1988, Trevor Harris' new Nissan 90 chassis is scheduled to be racing in May.

PRUETT INJURED, BOESEL TO SUB

Scott Pruett suffered severe injuries in a massive testing shunt on the Fairgrounds circuit of West Palm Beach, driving a TrueSports Lola Indy car. The updated 89 chassis evidently suffered brake failure, sending Pruett into the wall head-on at the end of the straight. He suffered two broken kneecaps, a compound fracture of the left ankle, two fractured heels, and two fractured vertebrae in his lower back. Pruett was taken to the Methodist Hospital in Indianapolis, where Dr. Terry Trammell directed two operations to repair the broken bones. Pruett declared himself "200 percent" within a week of the accident and was in good spirits, already motivating in a wheelchair.

Raul Boesel, the 1987 World Sports Prototype Champion and the driver of Doug Shierson's Indy car last season, will replace Pruett for the balance of the season.

PETTY — KYLE — WINS RECORD PURSE

Kyle Petty dominated the North Carolina Motor Speedway to win a record NASCAR purse of $294,450 after starting on the pole. His car owner, Felix Sabates, promptly rewarded him with a Rolls Royce! Petty's record winnings resulted from a $228,000 bonus paid by Unocal 76 gasoline to any driver able to win a Winston Cup race from the pole; the bonus pays $7,600 per race and "rolls over" until a driver collects it. The victory in the Peak Pontiac was the third career win for the 29-year-old son of Richard Petty.

Dale Earnhardt asserted his bid for a fourth Winston Cup championship by winning back-to-back races on the superspeedways of Atlanta and Darlington in his Goodwrench Chevy Lumina. The good ol' stars ran Goodyear radial tires at Darlington for the first time. Prior to the Atlanta race, Jack Roush lost the appeal of his team's $40,000 fine for winning the Richmond race with an illegal carburetor spacer.

HOOSIER TO RETURN?

Hoosier Tire President Bob Newton said successful experiments with new synthetic fibers from DuPont will enable him to return to NASCAR Winston Cup racing with radial tires to do battle once again with Goodyear. The maverick racing tire company owner, who stunned motorsports with his success in 1988 versus established Goodyear, predicted the return of the company by 1991 in a joint venture with General Tire. Hoosier already has a marketing agreement with General Tire, which is introducing a Hoosier brand performance radial for street cars.

MEARS HITS 221 AT INDY

In initial testing of the Penske PC-19 Chevy cars at Indianapolis, Rick Mears recorded a top lap of 221 mph. Neither of Mears' Marlboro "superteam" cohorts, Emerson Fittipaldi or Danny Sullivan, tested on the 2.5-mile oval. None of the other teams testing at the Speedway in March recorded speeds higher than 215 mph. Among those testing was convert Eddie Cheever, who turned 212 mph in Ganassi Racing's PC-18 Chevy. "From what I've seen, CART does its utmost to make sure the racing remains competitive," said the Formula One veteran. "Just the idea of having an engine that's not 60 horsepower down, like mine was in Formula One, is enough to give me the oomph to scrape the bottom of the barrel."

BRUNDLE, RAHAL JOIN IROC

The field for the first season of IROC racing in Dodge Daytonas was completed with the addition of Martin Brundle and Bobby Rahal to the starting lineup for the opener at Talladega. They join Rusty Wallace, Darrell Waltrip, Mark Martin, Al Unser, Jr., Danny Sullivan, Geoff Brabham, and defending titlist Terry Labonte.

CART CHOOSES NEW PRESIDENT

A. William Stokkan became the unanimous choice of the CART Board of Directors as the organization's next president. The Norwegian-born executive helped Playboy Enterprises grow to a $250 million business annually and marketing expertise was the main criteria for Stokkan's selection. Stokkan, 40, must come to financial terms with a committee headed by Roger Penske to complete his appointment.

FICTION

NOT BY CHANCE

This month we again meet up with our three favorite Ivy League freshmen. With the help of a Shelby GT350H rental car and a redhead named 3-D who can street race with the best, our hapless collegians avoid joining ranks with Uncle Sam's finest. Story by ***Rich Taylor.***

Illustrations by ***Dennis Simon***

Todd was a kleptomaniac. Chesterton Todd Ward IV, scion of a proud old New Haven family, would dreamwalk through Warwick Shopper's World and come out with a pocketful of curtain hooks, two tins of shoe polish, three lady's linen handkerchiefs, a crescent wrench, a bag of mints, six pairs of plastic earrings, and an Elvis Presley photo album.

Unfortunately, my other roommate, the musical prodigy Jason Mildstein, had an older brother who'd also gone to Brown. And Jason had inherited a master key that opened every door on campus, including the basement storerooms. The two of them would show up at our room with the craziest armloads of mismatched lamps, old books, discarded quilts, and ceramic figurines. Half the time, one of the campus guards would only be a corridor behind them, and they'd come tumbling in clutching their booty, panting and laughing over their narrow escape.

We finally ran out of storage space when Todd and Jason showed up one night with the complete contents of the Olney House student lounge — a group of hideously color-coordinated orange, green, and yellow chairs, two Danish Modern end tables, a matched set of white pole lamps, two neatly framed Views Of The Campus circa 1864 — and an eye-wrenching sofa upholstered in electric blue.

Not long after that, the Dean of Students came around to visit us in our cozy nook. Jason had thoughtfully removed all the Brown University labels from the bottoms of the furniture, so Dean Schultz couldn't positively identify the missing lounge furniture as his.

"How long have you boys had this handsome living room set," he asked innocently.

"All semester," said Todd.

"I see. Well, next week, over Easter Break, we're going to check every room in this college. I hope for your sake that there are two identical sets of furniture, one in your room and one in the Olney House lounge. Because if there aren't, I can only assume that you have my furniture." Dean Schultz leaned a bit closer, as if to tell a secret. "I'm told Saigon is nice this time of year." He worked his way through the clutter to the door.

"Wadda–wadda–we gonna do?" Jason tended to stutter when he grew excited.

"What we need," Todd said, "is a duplicate set of furniture."

"Yeah. R–right. Ho–how are we g–gonna do th–that?"

"Well, this stuff must have come from somewhere. We'll find out where the college bought it and we'll go there and just get another set."

"H–how? We d–don't h–have any m–money."

"Well, let's see if we can find the furniture first. Then we'll think of something. First we'll need a car to haul the stuff."

"A car? B–but we ha–haven't had a c–car since Un–uncle Bub–Brotherton's Invicta d–died."

"Exactly. It's about time we had some wheels around here." We stood in thoughtful silence for a long minute.

"U–Uh. I h–have Un–Un–Unc…his c–credit cards."

"What are you doing with my dead great uncle's credit cards?"

"We–well, ya–you kn–know w–when we were c–cleaning out h–his house? Th–they were on the t–table."

"You stole my dead uncle's credit cards?"

"We could rent a car," I said, hoping to head off another of their wasteful arguments.

"Yeah," Todd said, that dreamwalker's look in his eye. "If I put on a suit and dark glasses, I can pass for 21. And I know I can forge Uncle's signature."

The next afternoon about four o'clock, Jason and Todd came piling in. I was reading *Flying* magazine. In it was a story by Richard Bach. His basic argument was that nothing happens by chance, nothing is a coincidence, and that there is some higher intelligence directing everything that happens to us. If your engine quit on take–off, that was because you were meant to meet this neat old mechanic who lived near the airport and drove a 1947 Chevy pickup, not because you had sand clogging your fuel filter. Jason grabbed my arm and dragged me off the couch.

"Co–come see what Uncle B–Brotherton rented f–for us!"

Their rent–a–car was parked in front of the dorm with an admiring crowd of freshmen standing around it. They even had the hood propped up.

"They let you have a Shelby Mustang? On Uncle Brotherton's credit card?"

"Yeah," Todd said shyly. "But I had to lie and tell the girl I was 25. Uncle Brotherton had to join the Hertz Sports Car Club. See, here's his card."

Parked at the curb was a shiny black Mustang fastback with gold stripes down the middle, five-spoke Cragar wheels and "GT 350H" decals on the rocker panels. Why, it even had racing seat belts, a fake wood steering wheel, and hood pins. And a decal under the radio that read "This vehicle is equipped with competition brakes. Heavier than normal brake pedal pressure may be required."

"Can I drive it?"

"N–no, me!"

"You don't even have a driver's license, Jason."

"I d–do, too. I just c–can't drive at n–night."

"We can all drive. But my Great Uncle Brotherton rented it. So I get to drive first."

Aware of the dozens of eyes watching him, Todd walked slowly around the Mustang, closed and pinned the hood, slipped behind the wheel, settled into the seat, clicked the competition seat belts, checked the mirrors. Everyone waited.

Then *braam, braam, BRAAM,* the Shelby exhaust bounced around the quad. Todd shifted the automatic into D and stuck his foot into the firewall. We burned rubber all the way to Waterman Street. We were going furniture shopping.

> "We finally ran out of storage space when Todd and Jason showed up one night with the complete contents of the Olney House student lounge"

Nothing. We found nothing. No one had anything that resembled our borrowed lounge furniture. If we couldn't duplicate that ridiculous living room set by Saturday night, we'd be shouldering M16s before the Fourth of July. The situation was desperate. On Saturday, Todd took the wrong exit off I–95, which dumped us into a poor part of town. We found an old neighborhood shopping mall, gone to seed. The Shelby attracted all sorts of attention, but we were used to that by now.

"H–Hey. St-stop. There."

It was a furniture store that couldn't have changed much since the thirties. The facade was yellow brick, there was yellow translucent plastic over the windows to keep the sun from fading the furniture, and hand-lettered signs that screamed "NO MONEY DOWN" and "FINAL CLEARANCE, EVERYTHING MUST GO."

A crowd of guys in black leather jackets had formed around our car before the store doors had even stopped swinging behind us. In the back corner of the store sat a familiar electric blue couch and three yellow, green, and orange chairs.

> "Parked at the curb was a shiny black Mustang fastback with gold stripes down the middle, five-spoke Cragar wheels and "GT 350H" decals on the rocker panels"

"Momma, I'm home," Todd said in a heart-felt whisper.

"Hello, boys. My name's Murphy. Pat Murphy. Can I help you?"

Mr. Murphy was wearing a tweed blazer, red and white rep tie, and Bass Weejuns. It was a get–up much more appropriate to an English Lit. graduate seminar than a dusty furniture store on the wrong side of town.

"We–we need, th–th…" Jason's voice tapered off, overcome by the emotion of the moment. Mr. Murphy retained his alert and interested look.

"What he means," said Todd, "is that we'd like to buy, uh, borrow, I mean…"

"Are you boys students at Brown by any chance?"

"Yes, sir. We're freshmen. And we have this problem."

"Well, perhaps I can help. I'm a Brown man myself, class of '38. My brother is in the office. He's class of '36."

That explained the tweeds, but what the hell were they doing here? I figured the best tactic was to tell Mr. Murphy the truth.

"Well, Mr. Mur-phy, it's like this. We were playing a harmless prank, got ourselves in trouble with Dean Schultz, and only you can help us out."

"College pranks! I love 'em." Mr. Murphy's polite smile turned up another 100 watts to incandescent. "Why, one time my brother Ed and I took Nobby Hortwhistle's Model A and parked it in Sayles Hall. You know Sayles Hall? It was a bitch getting it up those stairs. And another time, we filled Dean Carberry's closet with water with a little hose through the keyhole. When he opened the door…. Here's Ed now." Ed was a carbon copy of his brother, right down to the old school tie and the shiny red nose.

"These boys were just going to tell us how we can help them with a prank up at the college." So I explained. Pat Murphy looked at Ed. Ed Murphy looked at Pat. They both smiled incandescent smiles. "Do you have your Brown ID cards? If we could write the numbers down, I don't see why you couldn't borrow that furniture." "Gee, thanks Mr. Murphy."

"That's okay. It's been sitting for years. Somebody at Brown ordered two sets, we delivered one, they cancelled the second. Never could understand why."

"Gee, thanks Mr. Murphy."

"Oh, our pleasure. Always glad to help a fellow student. You boys are pretty lucky. There were only two sets of furniture like that in the whole world. Custom order."

We were all smiling like light bulbs at our mutual good fortune when the unmistakable sound of a Shelby Mustang starting up filled the showroom. *Braam, Braam, BRAAM.*

"Was that you boys in the Mustang? Well, I think my son Patrick just borrowed it for a moment. It amuses him to try starting cars without the key."

"He stole my car," Todd shouted in righteous indignation. "Er, my uncle's car."

"Oh, don't worry. Patrick's not all there, but he's a good driver. Wins drag races on Atwells Avenue, they tell me. That's probably where he's heading right now."

I ran for the door. I swung it open with all my might, and the girl who had just grabbed the handle from the outside was swept off her feet. She screamed in my ear, then I felt something rake across my cheek. She was just raising her hand to scratch me again when I got a scissor hold around her legs, grabbed her wrists, and flipped her over on her back. I hadn't been on the high school wrestling team for nothing.

"Let me go. Oh. I might have known. You're from Brown. You're in my art class."

It's true. The disheveled redhead I helped from the floor was a Pembroke coed named Debrah, and we sat at opposite sides of the studio in Professor Koren's Principles of Composition 101.

> "Debrah was a theater major, an actress with a pretty and mobile face that constantly moved from one expression to another as though she were practicing for an audition"

Debrah was a theater major, an actress with a pretty and mobile face that constantly moved from one expression to another as though she were practicing for an audition. She was what my mother would have labelled, with a sniff, theatrical. I found her fascinating, and had spent long hours of art class memorizing and trying to draw her dozens of moods. She would never even smile in my direction, and when she found me staring at her legs, she'd snap her knees together and swivel away.

"I'm sorry. It's just that somebody stole our car and I was running to stop him."

Her face softened slightly, from iceberg to deep freeze. Now she was Grace Kelly in *To Catch A Thief*. "Oh, was that your Shelby? I know where he's going."

"Hang on," she said. She was a quick driver, I'll say that. She angled across town, block by block. She could keep the tires screeching nearly all the time.

"My old boyfriend built the engine. Shelby suspension, Goodyear Blue Streaks, the whole bit. Great car, even if he turned out to be a real drip. I wanted a Mustang *just* forever."

"Were you out shopping for furniture today?"

"You are a jerk! That's my father's store." She glanced at me demurely, Vivien Leigh's Scarlett O'Hara looking up at Rhett Butler — in the middle of a four–wheel drift. "I'm a day student. You know, a townie."

"But his name is Murphy."

"Did you ever hear of an actress named Debbie Murphy?" "So you made up Debrah D'Arcy-D'Urbanville?"

"They call me 3–D."

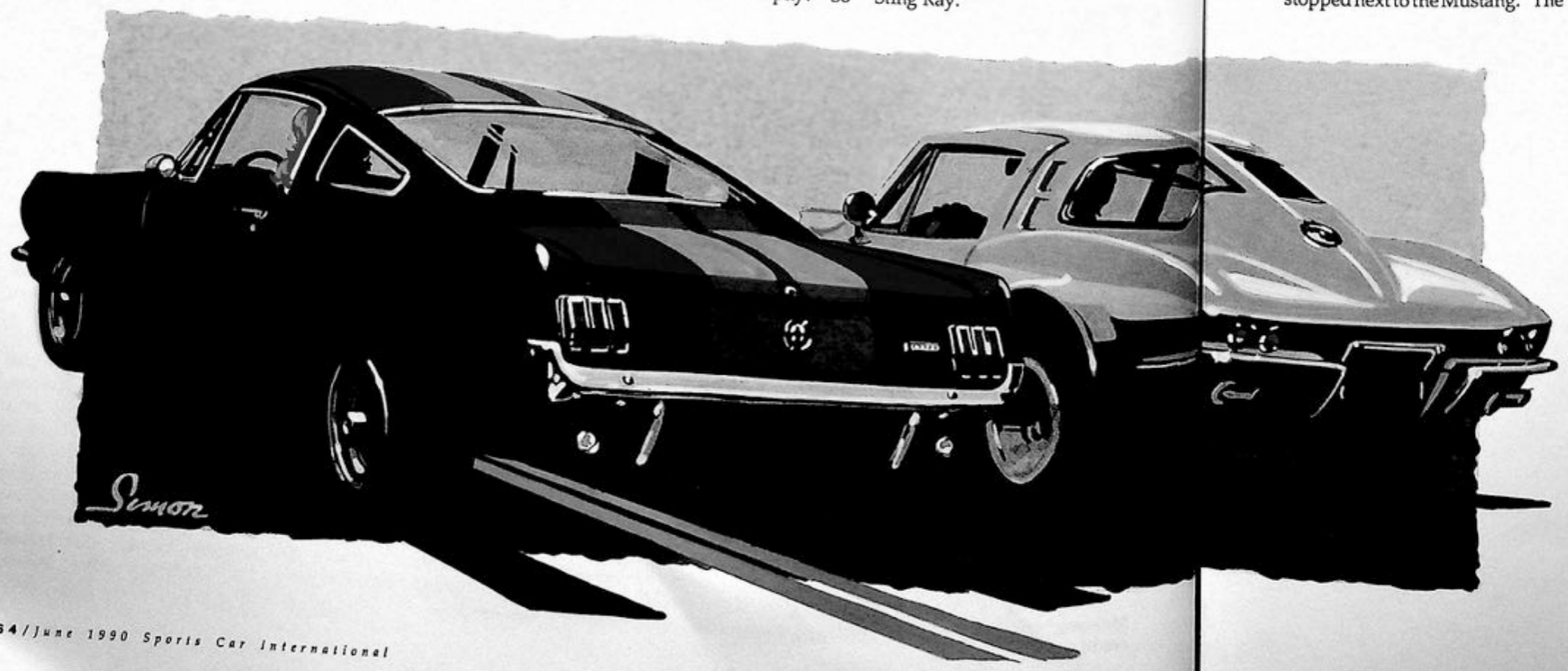
And with that, she slid the Mustang sideways onto Atwells Avenue, cutting off some old guy in a 1947 Chevy pickup, and braked to a stop just inches from Todd's Shelby. Another group of black leather jackets surrounded the car, and the hood was up. Next to the Shelby was a red Plymouth Belvedere. And next to that a black 442 Oldsmobile. In front was a dark blue big block Sting Ray with side pipes.

A big, mean–looking black leather jacket hunched over to us. He reached into the car, picked up Debrah under both arms, the way a gorilla would steal a baby, lifted her over the door, and kissed her full on the lips.

"Hi, Debbie."

She gave him the same cheekful of nails I'd already gotten. "Rico, put me down. This guy wants his car back," explained Debbie. "That's his Shelby."

"It's Irving Hertz's Shelby," corrected Rico. "But he's welcome to it. Got beat three runs by Bobby's Sting Ray."



"You just don't know how to drive it."

"Hey, guys. Debbie wants ta run da Shelby." The jacket chuckled a little.I expected a big laugh from Da Guys, but they solemnly buckled her into the Shelby, got the mysterious Bobby and his Sting Ray lined up next to her and heading up Atwells Avenue, then stopped traffic for three blocks ahead by the simple expedient of standing in the cross streets and threatening any driver who tried to pull onto the track.

Six o'clock on Saturday night, one of the main arteries in Providence, and these folks were running a full scale street race complete with side bets. The odds were ten to three for Bobby, four to one against Debbie. I put down my last $10 on Debbie in the Shelby. I could always borrow something from Jason for train fare home tomorrow, and once there, my Dad was usually good for a 50.

Of course, she won and I promptly collected $40. At the end, she spun the Shelby around in an expert J–turn. By the time I'd pocketed my money, she had stopped next to the Mustang. "The cops will be here any second. Follow me."

Jason yelled at us from the swinging doors. "Wh–where the hell h–have you been?"

"Getting back the Shelby."

"Mr. Murphy had to lock up. He lent us all the furniture, and some pads and ropes. He's a really nice guy."

"Yeah. His daughter's pretty nice, too."

Debbie gave me Maureen O'Hara doing *Mixed Emotions* to John Wayne, mad but pleased. Then she helped us rope the chairs on top of the Shelby. With a little squeezing, the tables went in the back seat.

"Jason and I can take this up to school and come right back."

"You guys can put the rest in mine. Why do you guys want this junk, anyway?" Since I still had the key to her car in my hand, I hopped into the driver's seat. She climbed into the passenger seat.

"You're the navigator. We don't know how we got here, or how to get back. We don't even know where we are."

Debbie directed me across town, kneeling on the seat and holding onto the couch with one hand. The wind blew her hair into a tangle, but I caught her looking at me a couple of times. She was doing Puzzled, I think. Or maybe it was Unsure.

I pulled quietly up near our dorm and parked in the shadows. Jason, Todd, and I wrestled the famous Olney House furniture out of our room, across the quad, and back into its lounge. Then we moved Mr. Murphy's furniture into our room.

"I w–wish I could s–see the look on Dean S–Schultz's face w–when he sees this!"

"I bet he never thought we could do it. He's gonna just die."

When I got back to the curb, the blue Sting Ray was sitting in the middle of the street. Debbie was arguing with a dark haired guy in a black leather jacket. She pulled me close, one arm wrapped around mine.

"I'd like you to meet my ex–boyfriend, Bobby. He was just leaving." Now she was Ingrid Bergman in *Casablanca*.

Bobby clenched and unclenched his fists, then climbed back into the Sting Ray. He laid down two streaks of rubber right over the ones Todd had put down a couple of days before.

"W–what's happening?"

"Debbie and I are going out to dinner at this place she knows across town."

"We are?"

"Yes. We are." I still had her hand. I steered her into the passenger seat of the Mustang, carefully shut and locked the door and hopped behind the wheel.

"I have to explain to her that nothing ever happens by chance."

"Wrong. There is a Random Theory. Everything in the universe happens randomly. You study it in Quantum Physics."

"Who's the professor?"

"Dean Schultz."

"It figures."

I laid a third set of rubber stripes all the way to the corner of Waterman Street. And not by chance.

SCI

ROAD RACING

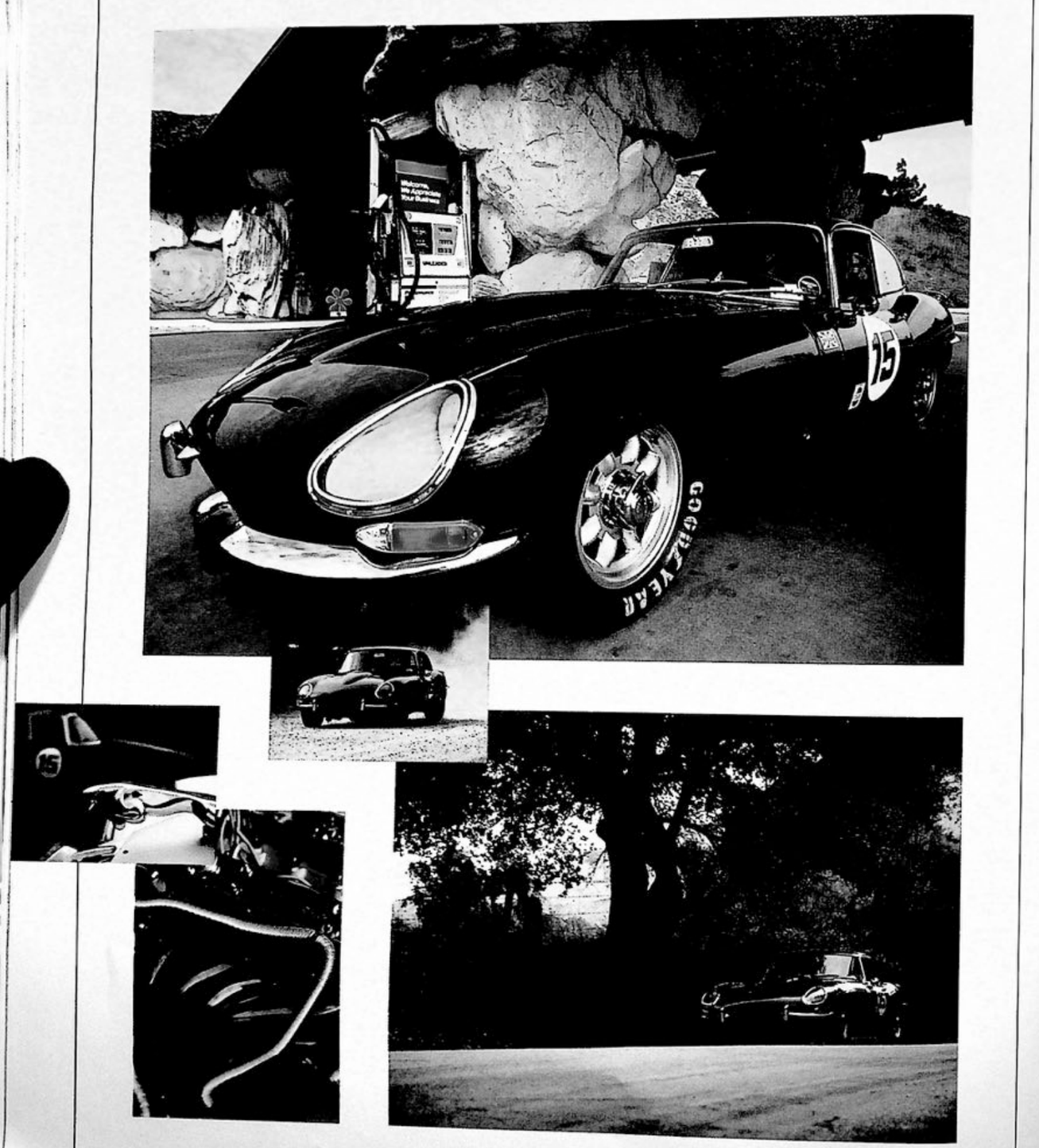
Is America still the land of the free and the home of the brave? A little driving adventure should tell. In the name of truth and science, ***John L. Stein*** *and photographer* ***Jesse Alexander*** *take the reins of a formidable vintage racer.*

IN THE BEGINNING, there were only road-races. Huge, treacherous machines raced across open country as big and wild as the moon. The men who drove them sought to prove that the automobile — their brand of automobile — was king. They raced across France, sped from London to Sydney, and around the world from New York to Paris. With a will as strong as metallurgy was weak, these giant machines were truly the first grand touring cars. And their drivers, nothing short of heroes. [illegible]

Decades later came [illegible] cars like the blower Bentley [illegible] the Ferrari [illegible] [illegible]

the racing C-types and D-types of the fifties [illegible] followed a decade in which Jaguar [illegible] owned LeMans. How [illegible] ing enthusiasts [illegible] times that are decidedly more [illegible] more restrictive? [illegible] that's where the Jaguar [illegible]

This [illegible] belongs to [illegible] its owner Jason [illegible] [illegible]



DCOEs, hand-crafted stainless exhaust, and dry-sump oiling systems, and a high-capacity brass radiator complete the engine room. Len estimates that the coupe now benefits from some 300 reliable horsepower. The cost of the engine development to make that power was about $25,000 — one-third of the entire project.

There was no scrimping on the driveline or suspension, either. A close-ratio gearbox and 4.11 rear axle help immensely, as do Wilwood front racing brake calipers and Series 3 (V12) ventilated rotors. Ride and handling are more tightly controlled with heavy-duty springs and Spax shocks, special bushings, and custom rear trailing arms. Alloy replica Mini-Lite wheels and fat Goodyear Blue Streaks complete the program.

While the interior was left pretty much stock except for the addition of a roll bar and Simpson competition belts, Len finished the body in stunning black epoxy that has so far withstood three years of vintage racing with little damage. Of course, never before had he loaned the car to a couple of road scholars.

So apprised of the qualifications — and cost — of the Jaguar, we prepare for our mountain tour. The point, of course, is to revel in bravery, freedom, and a great driving experience. We see it as a kind of self-directed Targa Florio. A 180-mile loop is charted that will take us up the coast from SLO, over the Santa Lucia Mountains, through cattle country, and back via the ranching town of Santa Margarita. Given the Jaguar's "Can't Catch Me" looks, we hope the day will be free from meetings with any posse in possession of its own rope and tree.

Start: San Luis Obispo, 9:17 a.m.

Call him trusting or call him well insured. But with a smile and a wave Mr. Len releases his black cat to us. It's ours to explore. Let's see — only a few switches on the dashboard actually work. One is the ignition key, another the starter button. We send a squirt of racing gas down the carburetor venturis, work both switches, and the Jaguar fires like it was built yesterday, not 26 years ago. All that exhaust rushing through a pair of Supertrapp mufflers makes a musical sound. Triples, sixes, and twelves are always a reward for the ears.

We pull away from the XKs Unlimited headquarters and through San Luis on the way to the coast. But what's this? Smoke curling off the asbestos-wrapped headers wafts into the cabin. "Hello, Blue Cross? Nothing serious, just some fumes from a burning asbestos packing." We hope we don't get lung cancer before lunch.

Carcinogenic or not, we soon discover that the car is strong. It has a good, spikey power curve with plenty of mid-range torque. This we find out while climbing onto Highway 101. The oil pressure is steady at 120 psi, coolant temperature at 80 degrees centigrade.

The highway opens ahead. A squeeze on the throttle pedal and the speedometer needle jumps to 100, 110, and beyond. From the driver's seat I can look through the hood louvers at the stainless headers beginning to turn color. The warbling of the 3.8 liter six fills the canopy. Our only complaint is the steering, which causes the car to hunt and dart when what we really want is to go straight. Len has dialed in a pinch of negative wheel camber to improve cornering. This may be causing the straight-line jitters.

There is a thin, nearly indiscernible fog hanging over the coast that has the foghorns blowing. We cut through it at speed, no gendarmes in sight. At Morro Rock, the senior citizens stroll out of their mobile homes for a look at the beach, two lovers perch in lawn chairs on top of a dune, and iceplant braces itself against the shifting sand. We drop back to an indicated 80 for the rest of the first leg. It's still an E-type, which is to say a reasonably comfortable GT with great ergonomics and outward visibility. All things considered, 1964 is looking pretty good again.

Pie stop: Cayucos, 10:20 a.m.

A black cat with a black shadow creeps into town. It's a cowboy town somebody built next to the Pacific Ocean by mistake, where surf shops share Main Street with saloons and Skippers Coffee Shop. That's where the Jaguar finds a parking spot, and the locals find the Jaguar. It's hard to say whether they're attracted to its arresting shape or the racing numbers.

We ponder this from inside Skippers. Cakes and pies rotating on a four-tier display have called us in. Cayucos means canoe or kayak, at least that's what our waitress says. She has a hickey the size of a Frisbee on her neck. It's blue, purple, and yellow, a real humdinger. Alexander figures it's a bruise, not a hickey. But from what? "Somebody got a choke hold on her," he says. Coffee and pie are served with a solid backhand.

So far, so good. We agree that just being here qualifies us as at least a little bit brave. As for the land of the free — well, we're not in jail yet, despite an average trip speed that Tom Walkinshaw would be interested in. We pay our bill and leave a tip good enough for a karate lesson or two.

East of Cambria, 12:32 p.m.

Howdy. We've just started up the road after refueling in beautiful little Cambria. If it doesn't look like the Swiss Alps up here, then nothing does. The Jaguar gearbox notches into second and we begin tackling switchbacks. The musical note of the six again fills our ears and the valley walls beside us. Above 4,

> *"Around us the hills explode with soft spring grasses, and below runs a stream hidden by trees, some of which close over the road like giant arms"*

rpm the engine smooths out, finding its ment. Len says it'll rev happily past 7,500 a that's obviously true. We are propel smoothly, powerfully, upward.

For all of the Jaguar's nervousness on straight and narrow, it is dynamite in corners, where the Goodyears take a solid bi The leather-wrapped wheel also allows a go grip, and we need it. This is a tough old bea Still sinewy and strong, it yearns for an op range and a practiced hand on the reins. By means drive smoothly, but use strength. Othe wise, it is a test of masters.

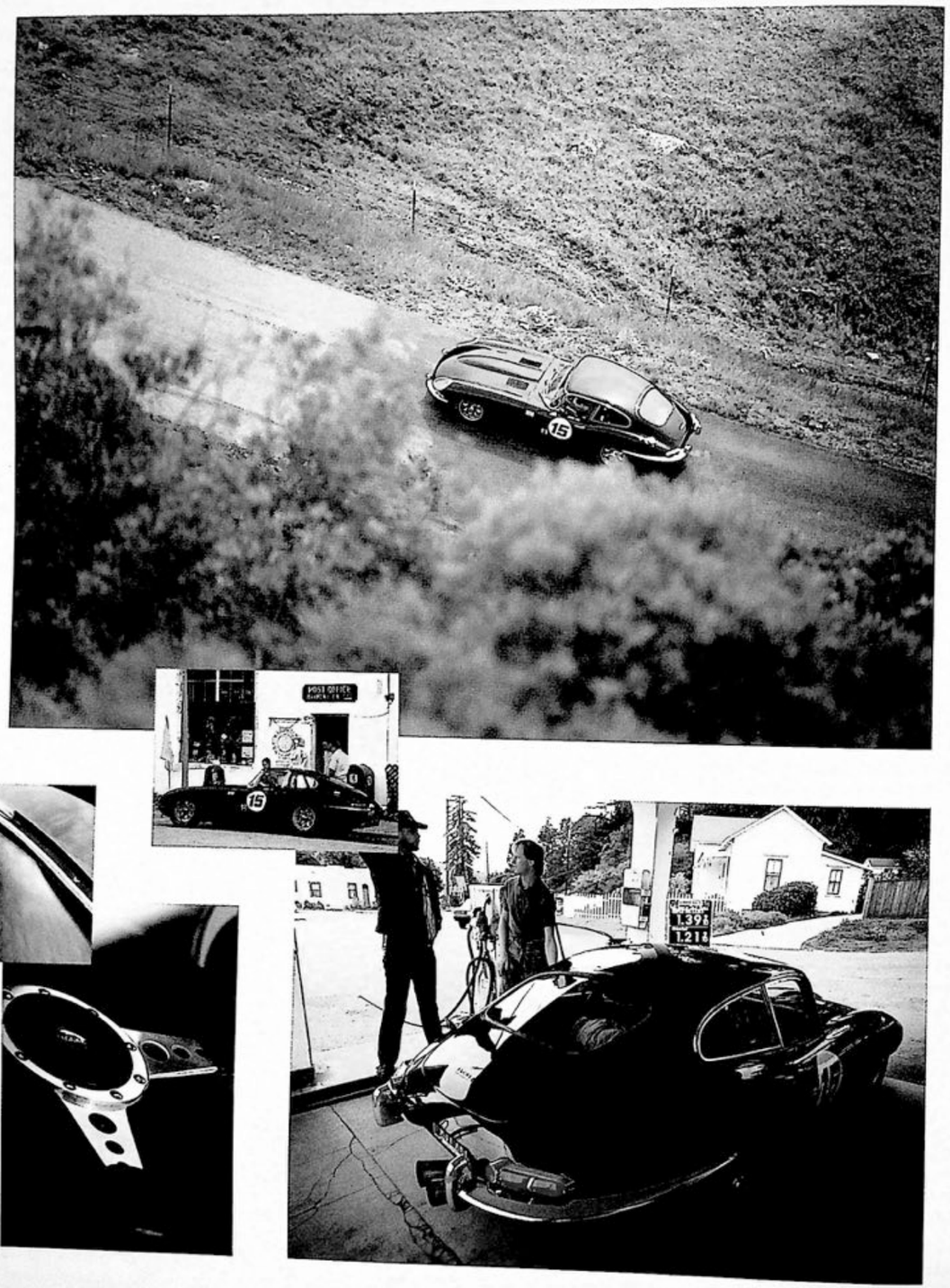
Around us the hills explode with soft sprir grasses, and below runs a stream hidden trees, some of which close over the road lik giant arms. The Jaguar is hard at work no and moving rapidly from shadow to sunligh Yet we are still locked into second-gear co ners and short chutes, and there's no room change up. Heat builds in the cabin, invisibl but assuredly. The temperature gauge sneak up to 95 degrees — nearly boiling. The cat's heat, all right. But the high-efficiency coolir system Len has installed keeps the tempera ture from climbing further. Only the cab grows warmer.

There's a steep switchback reminiscent Laguna Seca's corkscrew, and the XKE claw right up it, a wail echoing off the canyon wall We look out. It's now genuinely hot in the ca so we park for an unschedule look-see. Call it a surprise check point. Our view comprise 50,000 or more acres of steep wooded valley. Below are a hal dozen kinds of trees in sprin bloom, patches of grazing land butterflies, and turkey vulture Turkey vultures? Alexande spots them overhead. What doe he think the vultures are doing here? "Looking for somethin to eat." Hopefully, we're not i

If the Jaguar were to get loos from its parking spot, it woul roll straight down the hill, tur over, and slide a couple o hundred yards on its roof be fore landing on the road below That's how steep the terrain is We put a big rock under one tire and gaze i amazement at the mountains and the ocea beyond. Getting away from civilization ha been easy enough after all.

Lunch time: Creston, 2:10 p.m.

There is still such a thing as a one-horse town, and now we're in it. After a long run along the flatlands, it's time for a proper meal. The speedo needle has touched 130 once or twice along the way. We park and amble up to the bar at the Long Branch saloon for some food and a couple of stiff glasses of well water.



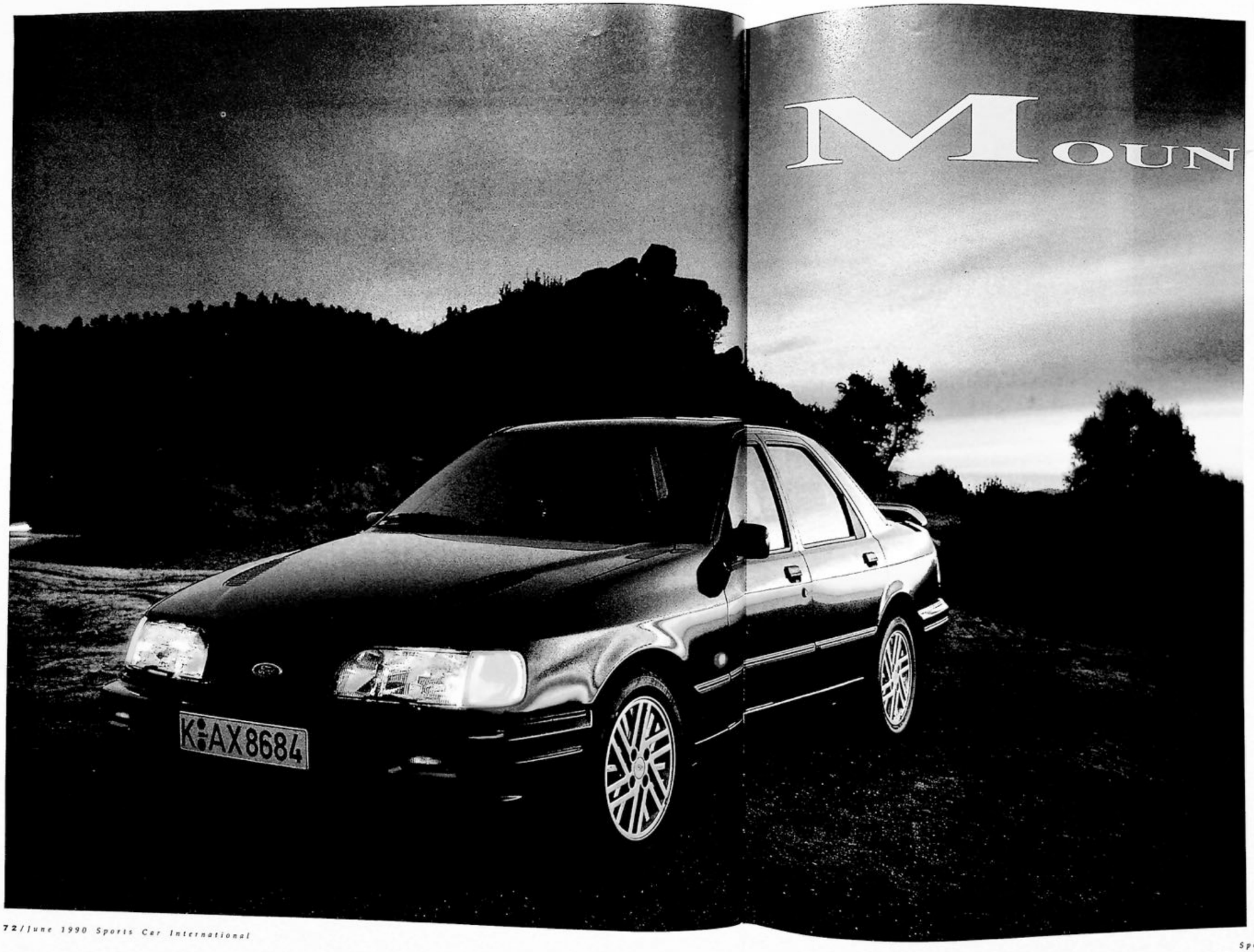
"Of course, we have no time card, no real checkpoints to meet, no competitors nipping at our flanks"

The bar has coins and horseshoes resined into it and a sign overhead: "Hangovers installed and serviced here." We order something that we know damned well is bad for us, namely a couple of Ortega Burgers. Today, bad is good. Jan behind the bar serves beer and Pesenti Chablis from a screw-top gallon jug to four locals. Out front is a single gas pump. The last time it was used, gas cost 30 cents. At least one patron besides us has been abstaining from drink. That's Lois, a U.S. Postal Service carrier. She has just finished her salad and diet drink and soon joins us outside by the car. Lois is about 55 and doing an excellent job with her new diet. She went to a drag race once and loved the speed. Now she would cherish a ride in a Jaguar. We comply, and why not? "Cheers" has helped to endear the Post Office to us all. She folds herself into the tiny passenger seat, grins, and clasps her hands expectantly. We burble out to the empty road, pick a direction, and pull the trigger. The E-type leaps off the mark, scarcely noticing its extra load. We howl through two gears and very nearly to redline in third. The speedometer shows 115, but it's plenty optimistic. We don't tell Lois. She spends the whole time staring, transfixed, at the gauge. Her Chrysler K-car won't do this.

Highway 101, 3:37 p.m.

Of course, we have no time card, no real checkpoints to meet, no competitors nipping at our flanks. We are on our own schedule and so make our own stops. The black cat climbs the mountains for a second time, then ever so slowly points downhill. So does the temperature gauge. All systems slow as in an airliner starting a descent. The cyclical exhaust note gives way to a calming drone. Relaxed, relaxing. We have had our way with the world all day. Alexander loosens his grip on the door sill. The tachometer needle swings slowly left. The heat machine cools, and we once more ride in comfort.

The E-type pauses briefly above Highway 101 before joining the modern traffic. We are not a youthful Stirling Moss and Denis Jenkinson flogging the 300SLR into Brescia. We're just a couple of honest citizens home from a day on the range. Well, at least we're citizens home from a day on the range. If our tour constitutes a crime, then at least it is a victimless crime. Now it's time to go home. The freeway moves up ahead and suddenly we are in it. We flow with the traffic like a little black balloon swept along by a jetstream. SCI



MOUNTAIN CLIMBER

Ford's Sierra Cosworth 4X4 may be the best four-wheel drive car now made, bar none. ***Jesse Crosse*** *had it scratching for traction in the mountains of Spain last spring. Photography by* ***Art Webb****.*

Approaching this left-hand hairpin halfway up a Spanish mountain, flat out in third gear at around 80 mph, you brake smoothly, heel-and-toeing into second gear. There's virtually no traffic here, and the roads, especially this one, are sensational. It's a bowled, left-hand hairpin with a rock face on the outside and nothing much except open air on the inside.

Coming off the brakes and turning in, the engine spins gruffly at around 5,000 rpm as the car tucks into the corner. The surface is smooth, the tracking only occasionally bothered by uneven camber. The Cosworth reacts with great poise. The front tires wail, and the car is hard to drift. The grip is phenomenal. Ease on the throttle and the neck strains even more.

Full power now, exiting the bend like a stone leaving a sling. The tail of the car nibbles away at oversteer, easily corrected with tiny inputs to the wheel. Seven thousand revs comes up almost instantly; that's 65 mph. Flick back into third, and the climb has flattened out, the 220 bhp Cosworth reeling in the road like fishing line. Shift into fourth at a whisker under 100 mph. The acceleration and grip are tremendous. With enough road, fourth gear yields 135 mph and fifth a rock steady 150 mph at 6,400 rpm.

For the moment, this mountain road will do. The chassis of this special car pummels away at indifferent surfaces and smooths them with carefully engineered spring and shock rates. It's a cunning combination and the Bridgestone ER90, 205/50ZR-15s have a lot to do with a ride that's surprisingly mellow.

A right–left third gear combination now, open again, but downhill this time. Just a hint of roll as the Sierra turns in, then swings back into the left–hander that has a double–apex. All the time the Cosworth engine hammers out plenty of horsepower and the chassis sits squat and stable.

THIRD GENERATION

This is the third Sierra Cosworth, but the first fitted with four–wheel drive. Launched in 1986, the Sierra Cosworth was developed by Ford Europe's Special Vehicle Engineering division. It was a homologation special, which means the manufacturer had to build a minimum of 5,000 in road trim to make it eligible for international Group A competition. Those first 5,000 have become classics, fetching around $24,500, exactly the same as when new.

Later, there was an Evolution car. If manufacturers build a further 10 percent of the homologation number, those cars can incorporate further modifications. The Sierra Cosworth Evolution, called the RS500, was fitted with a modified black box, bigger turbo, and a second injector rail, non-functional on the road car, but which could be brought to life with a different black box for racing. At the rear, the semi–trailing arm suspension was made adjustable, which helped racers to dial out undesirable low–speed understeer and generally provide more suspension tunability.

Finally, there came the Sapphire Cosworth in 1988 (SCI, Sept. 1988). The Sapphire is the Cosworth Ford with a trunk, and a mellower personality than the original hatchbacks it replaced. Intended for mainstream production, it was the best of the bunch in terms of refinement. It steered better, was easier to handle, and lacked the huge rear spoiler of the original car.

More had to come, though. The Sierra (Merkur XR4Ti in the US) was originally designed as a family car, and there are limits to what can be achieved with MacPherson struts at the front, semi–trailing arms at the rear, rear–wheel drive, and over 200 bhp. The Cosworth was still the sort of car that couldn't be taken too near its limits on the road, even in experienced hands.

Now there's the Cosworth 4X4. Actually, it will just be called the Sierra Cosworth because the two–wheel drive Sapphires will disappear, just as those hatchback versions did in the past.

FOUR BY FOUR

The 4X4 system is that used on the 2.9 liter V6-powered Sierra 4X4, a well-tested device that's been in service now for several years in Europe. The system uses two viscous couplings, one central and one in the rear axle acting as a limited slip differential. The center coupling is set to give a 34/66 percent front/rear bias.

While Audi uses a hollow shaft system to take the drive from the output end of the gearbox back to the front differential, Ford uses a transfer box with an external shaft. And that means the gearbox can be a conventional rear–drive type.

At the front, there are gas–filled MacPherson struts, with a 30mm anti-roll bar and four–pot calipers straddling 11-inch ventilated discs. To avoid locking those race–spec front brakes, ABS is standard, too. At the rear, there are semi–trailing arms, coil springs, gas–filled shocks, an 18mm anti–roll bar, and single–pot calipers on ventilated discs measuring 10.7 inches around.

And then there's that impressive engine, which has seen four stages of development since 1986. Cosworth Engineering has had a long liaison with Ford and their string of Ford Cosworth Formula One engines needs no introduction. Their principal task on the original Sierra Cosworth was to produce the all–alloy, 16–valve, twin cam head from scratch, and develop an entire engine around the Ford basics, which could not only produce, as it turned out, 204 bhp at 6,000 rpm and 205 lbs. ft. of torque at 4,500 rpm, but still run for the full term expected of a modern production car.

A forged steel crank, steel connecting rods, and forged Mahle pistons formed the heart of the engine. The head was produced using a Cosworth-developed technique that draws molten alloy straight up from the mold, avoiding the splashing and subsequent contamination from oxides that normally occurs. Sodium-filled exhaust valves and centrally mounted spark plugs finished off the design, together with a Garrett AiResearch T3 turbo and air–to–air intercooler.

The new engine develops 220 bhp at 6,250 rpm and 214 lbs. ft. of torque at 3,500 rpm. The compression ratio is 8.0:1, there's a bigger intercooler (the original always needed modification by tuners to gain more power), and the Garrett T3 turbo has a slightly bigger casing and rotor than before.

The inlet manifold has been completely redesigned in cast nickel–iron to reduce vibration problems (despite a damper, early turbos sometimes unscrewed themselves). The Weber-Marelli engine management system has been modified to provide more effective wastegate control and calculates air mass from density, itself calculated from intake air temperatures and pressure measured in the inlet manifold.

Spark plugs are platinum-tipped, essential for meeting 83US emissions standards, combined with the twin catalytic converters fitted to European Cosworths for the first time. To avoid problems with differing fuels, a knock sensor has been fitted where on earlier engines the management chip had to be changed to suit available fuel.

Eighty percent of the Cos-worth's torque comes at only 2,300 rpm and doesn't drop below that until 6,500 rpm. That adds up to a claimed 0-60 mph time of 6.6 seconds, despite the fact that the grip four-wheel drive affords makes good 0-60 mph times difficult to achieve.

CABIN

Inside the cabin, things are much as before. Conventional Sierra instruments (including rev counter, naturally) are easy to read through the three–spoked wheel. Ford Europe has always been among the best in creating purposeful driving positions and the heavily bolstered Recaros emphasize that. The gearshift is a convenient drop from the wheel and first–second, third–fourth gearchanges have a comfortable downward direction to the shift. The interior finish is a subtle blend of grays. Standard Sierra stalks sit on either side of the wheel for lights and wipers, and logically placed switches mean you don't have to fight for the lights when you need them in a hurry.

Back on the mountain, the Cosworth never disappoints and still amazes with its stability. What impresses even more is the way in which its traction doesn't dull the chassis, so often the case in four–wheel drivers. Tight, bumpy, corners emphasize that fact, and the tail will just barely drift out when pressing hard, where before you might have been met with side–slapping oversteer.

The resulting car mixes security with supreme ability and a brightness in the chassis' feel, so essential in a sporting car. Ray Diggens, project leader at SVE, explains that there's a stiffener bonded into the rear C-pillar and the rear crossmember is stiffened in an effort to reduce rear-wheel steer. It shows, especially at high speed where little correction is needed when driving in a dead straight line. And as Diggens and his boss, SVE chief Rod Mansfield, keep telling us, the story of this car is one of steady development.

The brakes are monstrously powerful. They have to be, with a firm feel, and a pedal whose height is nicely aligned with the throttle for heel–and–toe shifting. The steering is more alive than usual (four–wheel drivers are noted for deadness in that department) while not feeding back unwanted input from bumpy roads. SVE has created a car that's born to be thrown about with as much abandon as the driver can muster.

Just as well, really. Works rally cars from Ford Motorsport will be entered in the Rally of the 1000 Lakes in Finland, the San Remo, and the RAC rally in Britain this year. The drivers will be Britain's Malcolm Wilson, Finnish driver Pentti Airikkala, and Italian Franco Cunico.

The rest of us, meanwhile, will have to make do enjoying these cars on the road. At $39,000, that privilege doesn't come cheap, especially when you think that the first homologation specials retailed at just $24,500. Until, that is, Ford realized just how successful the car was going to be.

And the US? Ford US would undoubtedly love to have the car; its emissions standards are up to scratch. But the problem is one of volume. Cosworth can only build 7,000 engines a year. As usual, nobody in Europe wants to create US demands that can't be met. If you're visiting Europe, though, try one. Opinions of journalists do vary, but on this issue most are agreed. The new Cosworth is simply the best high performance four–wheel drive car you can buy, bar none. And considering the opposition from Germany and Japan, that's no mean achievement. SCI

Vehicle: Ford Sierra Cosworth 4x4

GENERAL DATA
Vehicle Type: front engine, front-wheel drive, four passenger, four door sedan
Base Price: $39,000
Body/Chassis: unit steel construction

ENGINE
Configuration: dohc, 16-valve, turbocharged/intercooled inline four
Displacement: 1996cc
Bore/Stroke: 90.8 x 77.0mm
Horsepower: 220 bhp @ 6,250 rpm
Torque: 214 lbs. ft. @ 3,500 rpm
Compression: 8.0:1
Fuel System: Weber-Marelli ignition/injection
Fuel Required: unleaded, premium

TRANSMISSION
Type: 5-speed manual
1st: 3.608; 2nd: 2.080; 3rd: 1.363; 4th: 1.000; 5th: 0.829
Final Drive: 3.62:1

DIMENSIONS AND CAPACITIES
Wheelbase: 102.6 in.
Length: 175.9 in.
Width: 66.8 in.
Height: 53.5 in.
Curb Weight: 2,816 lbs.
Fuel Capacity: 15.9 gal.

STEERING, SUSPENSION, BRAKES
Suspension: F: MacPherson struts, 30mm anti-roll bar; R: semi-trailing arms, 18mm anti-roll bar, tube shocks
Steering Type: rack and pinion, power assisted
Brakes: F: 11.0 in. vented discs w/ABS; R: 10.7 in. discs w/ABS
Wheels: 7 x 17 in. alloy
Tires: Bridgestone ER90, 205/50ZR-15

PERFORMANCE
0-60: 6.6 sec. (claimed)
Top Speed: 150 mph

NEXT MONTH

Japan's best home-market sports cars: Nissan Saurus, Mazda AZ550s, Suzuki Cappuccino and others.
Also, a look at the 1990 Formula One field.

Breathes there a man with soul so dead,
who never to himself has said, "Christ, I could build
a better car than Ferrari."

CONSULIER GTP

It may not be the prettiest car ever made, but the Consulier has its strong points. Like handling, braking, and acceleration. After driving a street-legal Consulier and racing one at Nelson Ledges, Rich Taylor became the Consulier's leading public defender. He then talked Consulier and SCI into sponsoring the redesign contest you'll find at the end of this article. Photography by Jean Constantine

SAY HELLO to the latest Ferrari challenger, Warren Mosler. A self-confident young bond trader and partner in Adams, Viner, and Mosler of West Palm Beach, Mosler has owned all sorts of expensive exotics over the years, including a string of Ferraris. He's also done some SCCA racing, some endurance racing, some vintage racing — the normal wealthy car enthusiast stuff.

But about three years ago, Warren decided he could build a better sports car than anything else on the market, including the 308 he was driving. His concept was to make a street-going GTP car, extremely high-tech, with absolutely the best handling and performance available anywhere in the world at any price. No compromises.

So now Warren is also the owner of Consulier Industries, Inc. of Riviera Beach, Florida. Consulier has about 55 employees, and they are building Warren Mosler's dream car at the rate of one a week. Their goal is to double that, no more. Consulier has ten dealers now, and they plan to add two dozen more by the end of the year. So far, Warren has done everything right, better than right, even. But is his dream car your dream car? Maybe, maybe not.

The chassis engineering is beyond reproach. Race car builder Bob McKee, creator of some of the most interesting cars in the heydey of the Can-Am, designed the Consulier suspension. It's essentially a conventional fabricated race car independent set-up, with lower A-arms and upper rocker arms. Carrera coil-over shocks are mounted inboard. There is an anti-roll bar on the front only.

Unlike most racing-derived suspensions, McKee's manages to combine crisp handling with remarkably long travel. Even over whoop-de-doos and potholes, it's virtually impossible to bottom the suspension. Get all four wheels off the ground, and the car will land light as a feather without that neck-snapping jolt you'd expect from virtually any other high-performance car.

Four-wheel vented disc brakes are mounted outboard, tucked inside 15.0 x 6.0 alloy wheels. Tires are Yokohama A008Rs, 205/50VR-15 on the front, 225/50VR-15 on the rear. This is showroom stock racing rubber, the tire of choice for people who must race on DOT legal tires. According to Warren, his Consulier will brake and corner at better than 1.0 g, thanks mostly to McKee's superb suspension and these sticky Yokohamas.

At Lime Rock, where handling is most important for quick lap times, local hotshoe Bruce MacInnes lapped at 1:01.25 in a fully street legal Consulier on street tires. This is about three seconds quicker than Showroom Stock Corvettes can get around Lime Rock, and almost exactly as quick as Skip Barber School Formula Fords lap on street tires. And that's quick.

INNOVATIVE CHASSIS

By far the most innovative part of the Consulier is the chassis. The first all–composite passenger car unibody since Colin Chapman's Lotus Elite of the late fifties, it is a mix of epoxy/Kevlar/carbon fiber and epoxy/glassfiber over closed-cell foam. There is a rear tubular steel subframe to hold the engine/transaxle/suspension and a front subframe to hold the suspension. All the rest of the structure is composite.

Composite construction sounds too good to be true. The Consulier meets every federal safety law — including frontal impact and side impact — without resorting to impact bumpers or hydraulic impact absorbers. Ram a Consulier into a barrier at 30 mph and it crushes linearly. In the bumper test, the pendulum hits the low–slung Consulier somewhere in the middle of the hood. No problem. The pendulum bounces off without leaving a scratch or dent.

Such advanced engineering and exotic materials are expensive. Warren Mosler has invested literally millions of dollars in Consulier Industries, and has set a price of $58,900 on the LX model. There is a stripped Sports model primarily intended for racing and priced at $48,900. Even at these fairly expensive prices, it will take a long time to recoup the investment. For Warren, Consulier is somewhere between a hobby, a passion, and a labor of love.

Power for the Consulier GTP is a run-of-the-mill Chrysler Turbo II. Admittedly, it's turbocharged and intercooled, but a 2.2 liter four producing 175 horsepower is hardly the stuff of most enthusiasts' dreams. On the other hand, the lightweight Consulier can zip from 0 to 60 in just five seconds and reach someplace over 150 mph. Think of it as a less expensive, more reliable Lotus that's 5.0 seconds a lap quicker. Despite its unassuming engine, the Consulier has performance comparable to other $50,000 to $100,000 exotic high-performance cars.

The 5–speed Getrag transaxle is from a front–wheel drive Chrysler, too, but mounted behind the seats in the Consulier. Other Chrysler bits are the brakes, steering, spindles and hubs, and most of the interior hardware and switches, excepting the VDO gauges. Borrowing bits from other cars may not seem quite right, but small manufacturers have been doing this since before the Model T. Why spend millions of dollars to engineer something like doorhandles when you can buy better ones from Chrysler for $10?

The Consulier is smaller than it looks in pictures, a 1,950 lb., waist–high coupe (the racing Sports model weighs only 1,900 lbs.). Yet the interior is huge. You sit flat on the floor in Recaro seats, with your legs straight out in front of you. But there is enough leg and head room for someone six foot six, and it's easy to get yourself comfortable behind the wheel. All the controls and a bewildering array of gauges — nine minor instruments in addition to the speedometer and tach — are mounted on a massive matte–finish sheet of aluminum that fronts a deep dash going forward beneath the windshield.

REAL CAR

The Consulier is a real car. All interior surfaces are carpeted or upholstered, while air-conditioning, cruise control, power windows, mirrors and locks, tilt wheel, and an Alpine AM/FM/CD are standard on the LX. You can even order leather Recaros. Within reason, these are hand–built cars, so virtually any upholstery material, color, or option is available for a price.

And then there's the composite bodywork. The Consulier GTP is beautifully made, aerodynamically efficient, technologically advanced, unbelievably fast — and almost sinfully ugly. Just about everyone who's ever seen or driven one looks it over and says, "Gee, Warren, what a great car. Would you let me restyle it for you? I'd do it for free!"

Perhaps it's because Warren Mosler has kept too closely to his original "street–legal GTP car" concept. And GTP cars, while forceful, are not exactly pretty. Perhaps it's because, as he says, the car was styled "by everybody and nobody." The Consulier's profile is actually pretty decent, and many of the details are perfectly acceptable. But the surface development is painful, and the window treatment excruciating.

Perfectly flat slab sides may make great sponsorship billboards on a 962 at LeMans, but on a street–driven Consulier they just don't work. Even quartz quad headlights tunneled into the fenders may be authentic race car treatment, but they seem awkward in this day of aerodynamic flush headlights on even the lowliest Japanese economy sedans.

ON TRACK

The first Consulier I ever saw was at the Longest Day of Nelson Ledges 24–Hour race in 1988. I was one of the drivers in the winning Mustang GT sponsored by Popular Mechanics. For the first half of the race, every hour or so the Consulier that had qualified on the pole would slowly come up behind the Mustang, lap me, and slowly pull away. It was just about one second a lap faster.

From my vantage point behind the wheel of the comparatively huge, smooth-riding Mustang, the little Consulier looked like a handful. It was obviously fast, but pitching and bobbing all over the road when entering corners. It looked as though the rear springs were too stiff, the fronts not stiff enough. I remember being glad I was driving the Mustang, particularly after the Consulier started spending more time in the pits than on the track. It ended up way back in the pack.

In 1989, I joined the Consulier team at Nelson, sharing a car with Rick Mancuso and Lance Stewart. We were part of an incredible racing effort that included three race cars, three spare cars, two motorhomes, a tractor–trailer, three dozen people — including designer Jim McKee and two full–time cooks who offered up chicken and ribs at three a.m. — and enough spares to sink the Exxon Valdez. The other drivers included Chet Fillip, Ron Cortez, Fred Fiala, John McComb, John Torok, and Alan Simon.

The Consuliers started one–two–three on the pole. We were dramatically quicker than both the Saleen Mustang driven by the Popular Mechanics crew and the Archer Brothers' Eagles. Our cars were easy to drive. Following another Consulier, I could neither see nor feel any of the pitch and yaw I'd noticed in 1988. Chet Fillip and Bob McKee had obviously made the suspension work.

In the race itself, the Consuliers ran off and hid until a bizarre combination of circumstances put us out. One car went off course with no damage, but wasted 20 laps getting towed back onto the track. The other two Consuliers both caught fire from fractured fuel filters, then later lunched their turbos after 10 hours. While resting overnight, the ignition timing had mysteriously slipped from the proper 10 degrees advance to zero degrees.

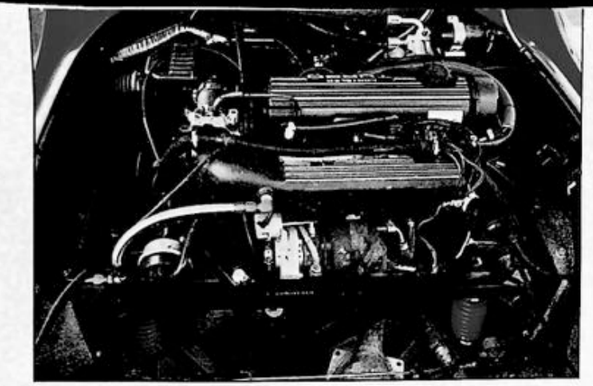
After our broken car was parked behind the fence, Rick Mancuso and I were switched into the remaining Consulier to try to make up time. We were catching the leaders by two laps per hour, a rate that would have let us win. But at 6:00 a.m., an errant BMW 2002 spun just as I was lapping him and put us both into the guardrail at about 100 mph.

This gets interesting. The BMW was a total wreck. The unibody was bent, the front subframe displaced, etc. It had to be towed back to the pits. My Consulier, on the other hand, suffered a cracked fender and smashed windshield. All the headlights were out, but I drove the car back to the pits at racing speed. Team Manager Chet Fillip took one look at the car and withdrew despite my protests. Full of adrenaline, I remember screaming, "Put some lights on this f—ing thing. It's still running and tracking okay. We can race it!"

At the time, Fillip couldn't believe that any car could take a 100 mph squeeze between a BMW and a guardrail without damage. He did notice, however, two fractured motormounts. After they returned to Florida, the Consulier crew glassed on a replacement fender, replaced the windshield, and the car was as good as new. I'm expecting that Warren will let me drive it again at Nelson Ledges this year, hopefully with more positive results.

I honestly believe that if I'd been driving any normal passenger car, I would have been seriously injured in this crash. It might seem curious to say, but I think the 1,900 lb., all–composite Consulier must be one of the safest cars on the road whether you're measuring active safety — handling, braking, acceleration — or passive safety — the ability to take a hit. I'm a believer.

SCI



There's nothing wrong with the concept of an externally mounted radiator in the rear spoiler, complete with electric cooling fans. Nor are rear-window louvers unprecedented. But all together, these details give the rear of the Consulier an appearance even more ungainly than the front's.

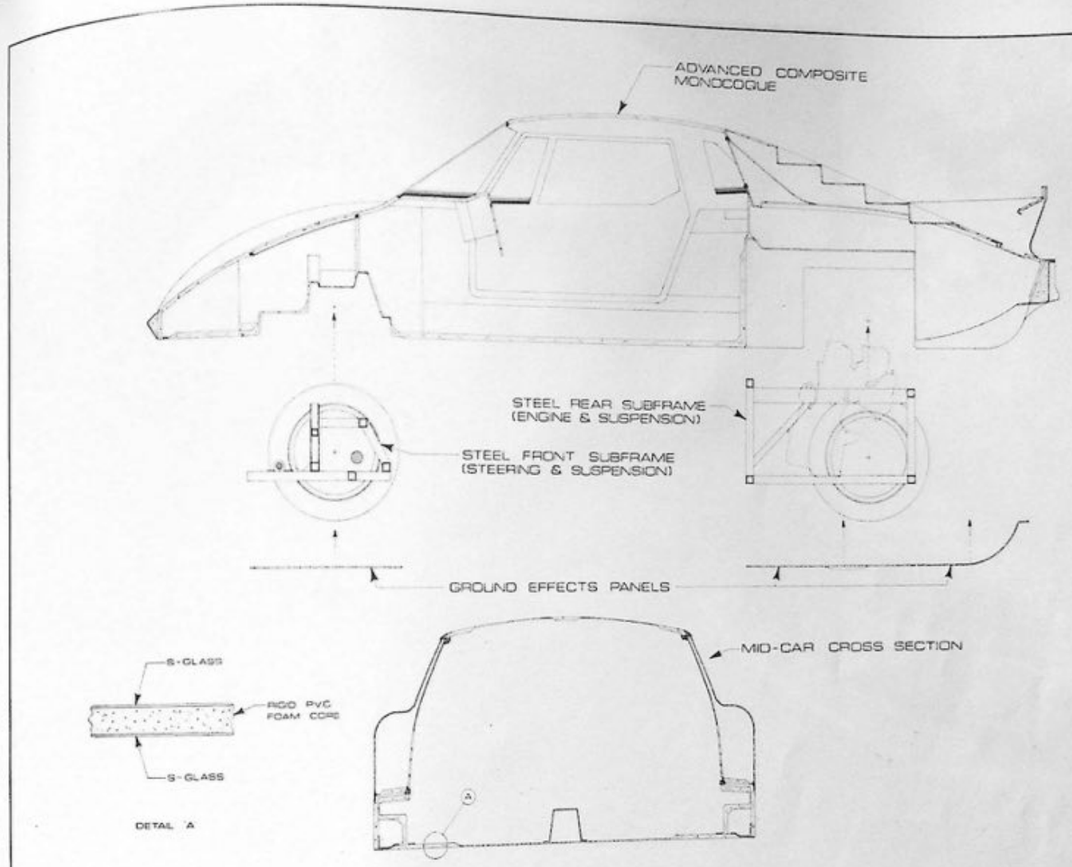
Warren is trying various tail treatments. He has also cut the roof off to make a prototype roadster. But what the Consulier really needs is a complete bumper-to-bumper restyling.

STRUCTURAL

This is harder than you might think at first glance, because the bodywork is also structural. According to Warren and his chief engineer, former Indy 500 driver Chet Fillip, the awkward window pillars are the way they are because of structural reasons, and the fenders need at least a 4.0 inch radius support. But both agree that there are many other shapes that would be as strong and aerodynamic — and in my opinion, a lot better looking.

Is the Consulier your dream car? Well, it will go, stop, and handle as well as any car you can buy for under $100,000, and many that cost even more. It will be incredibly safe and durable to own and drive, and most mechanical bits can be repaired at any Chrysler dealership without trauma. It's also amazingly comfortable on long trips. You'll love driving it.

Unfortunately, driving excellence is only part of car ownership. There's also the way you look when you're driving, the impression you make, the image you project. In a Consulier, you'll certainly attract attention whether you're driving down I-95 or pulling up to the doorman at The Breakers. But is "Hey, neat car! Did you build it yourself?" exactly the response you want for $54,000? They don't ask that when you pull up in a Ferrari. SCI



We like the GTP by Consulier. A lot. It's one of the best-handling, best-braking, quickest-accelerating street-legal cars you can buy in this country. And it's even 100 percent American-made. But we don't think it's as pretty as it could be, not by a long shot. We think a world-class performer deserves world-class looks.

That's where you come in. *Sports Car International* and Consulier Industries have put up $2,000 for the winners of our Design-A-Consulier restyling contest. It's simple. We've given you the basic specifications and a set of dimensions. All you have to do is restyle the Consulier into the American sports car you think it should be. The sky's the limit. You're starting with a clean sheet of paper and can be as outrageous as you want.

Obviously, good looks, aerodynamic efficiency, and "buildability" are important. Warren Mosler is perfectly serious about putting your dream car into production if it's feasible. Composite construction allows great latitude, but there's little point in designing a car that would be impossible to build, no matter how striking it might appear in a rendering.

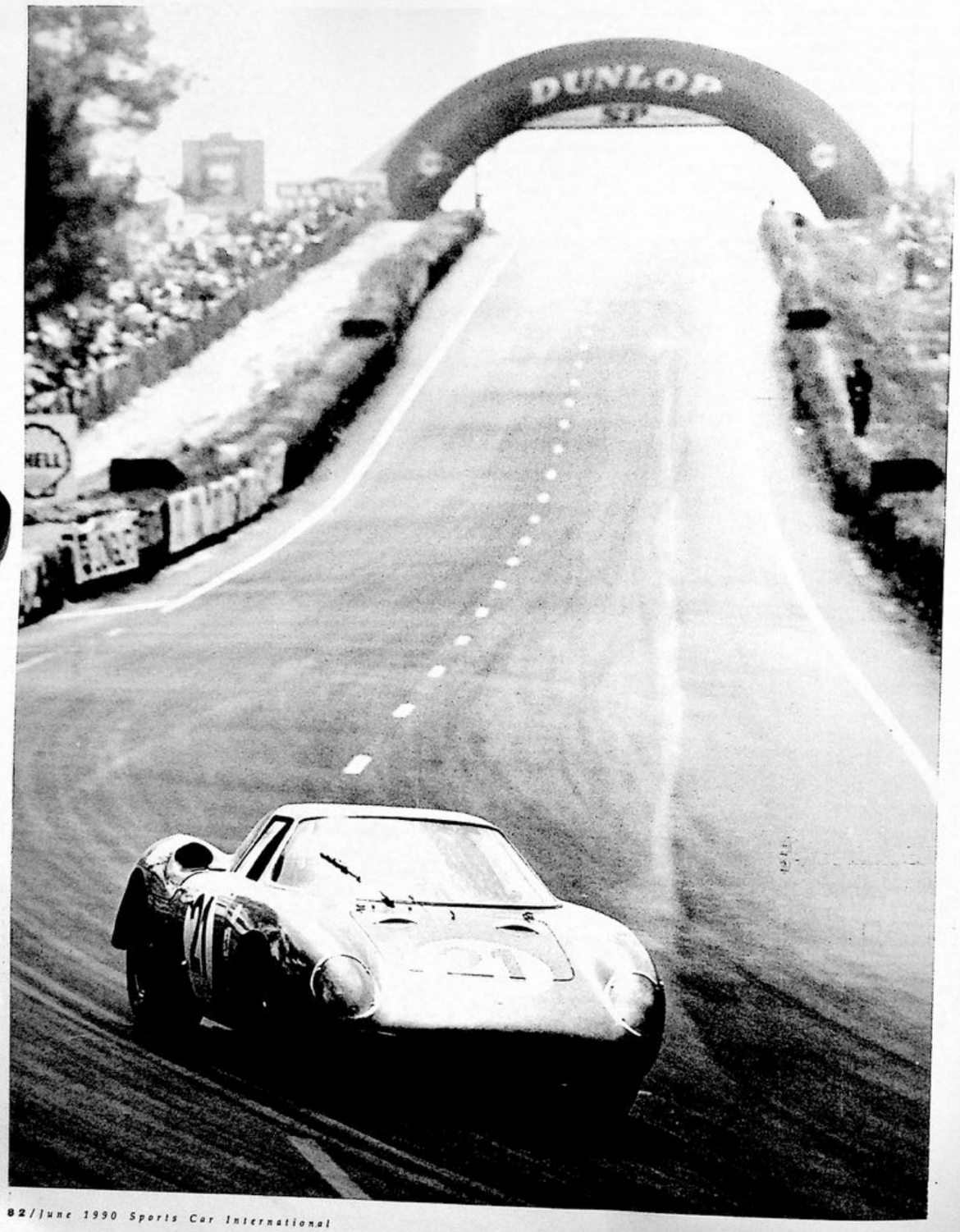
We'll take your design any way you want to present it, though obviously, crayon on butcher paper is not apt to impress our judges. If you think you can convey all you need with one four-color rendering, go ahead. We'd recommend side, front, top, and rear elevations, as well as a color rendering. But don't let us tell you how to do it.

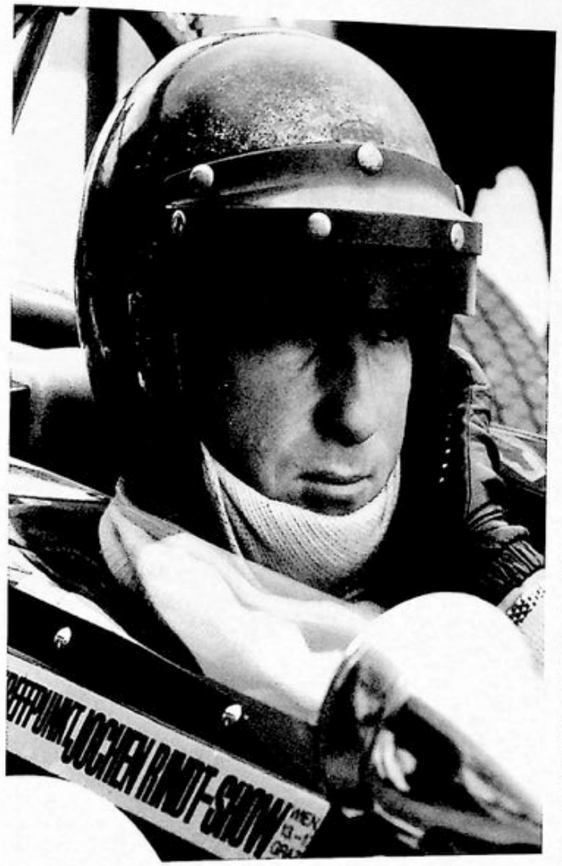
SCI DESIGN-A-CONSULIER CONTEST
First Prize: $1,000.00
Second Prize: $500.00
Third Prize: $250.00
Fourth Prize: $150.00
Fifth Prize: $100.00

The decision of the judges is final. All artwork becomes the property of SCI and/or Consulier Industries. Deadline for entries is postmark by midnight September 1, 1990. Winning designs and selected other designs will be reproduced in SCI in the January, 1991 issue. Employees, contributors, associates of Consulier Industries or SCI, or their relatives, are prohibited from entering.

Send all entries to Design-A-Consulier, SCI, 3901 Westerly Place, Suite 120, Newport Beach, CA 92660.

CONSULIER GTP SPECIFICATIONS
Wheelbase: 100.0 in.
Track, F/R: 60.5 in.
Width: 72.0 in.
Height: 44.5 in.
Length: 172.0 in.
Ground clearance: 6.0 in.
Overhang, F&R: 28.0 in./44.0 in.
Curb weight: 1,950 lbs.
Weight distribution, F/R%: 37/63
Tires: Yokohama A008R, F: 205/50VR-15 R: 225/50VR-15





JOCHEN

Jochen Rindt wasn't the thinking man's Grand Prix driver. That was Jackie Stewart. With, and sometimes even without, equal equipment, Rindt was simply faster than anyone else, oversteering his way through every corner. ***Preston Lerner*** *profiles the "King of Formula Two" and the only posthumous World Formula One Champion. Photography by* ***Bernard Cahier.***

■

UNTIL IT WAS tamed by the addition of guardrails and chicanes, Spa-Francorchamps — the traditional site of the Belgian Grand Prix — could have laid justifiable claim to being the world's most treacherous racecourse. As recently as 1970, lap speeds ran within 7 mph of those recorded at Indy despite a hairpin at La Source and run-off areas that shot right into the Ardennes Forest. No less celebrated a driver than Jimmy Clark nearly quit racing after his first visit to Spa in 1960, when two drivers were hospitalized after crashing during practice and then two others were killed during the race itself.

The 1966 edition of the Belgian Grand Prix featured an even more nightmarish scenario, though with less dire results. After taking the green flag on a dry track, the field of 15 drivers ran into a rainstorm halfway around the 8.76-mile course. Eight cars careened into the woods. A ninth — an overweight, underpowered Cooper-Maserati driven by Jochen Rindt — turned a couple of terrifying snap spins while traveling nearly flat-out down the Masta Straight.

The experience left Rindt dizzy but undaunted. A lesser driver might have considered the quality of his equipment and decided that he'd done quite enough racing for one afternoon. A more experienced one, valuing his life more than his reputation, might have resumed at a more sedate pace. But Rindt, then only 24, was too young to know better and too fearless to care. After regaining control of his wayward Cooper, he snicked the gear lever into second and splashed off in search of the leaders. Thus began one of those rare instances when a driver wrings more out of a car than even its designers suspected it capable of producing. Within three laps, Rindt had not only caught the leaders, but passed them as well. For the next 20 laps — three quarters of the race — he outran John Surtees' pole-sitting Ferrari. The ferocity of their battle was such that they passed Richie Ginther (in a second Cooper-Maserati) three times, Jack Brabham (in the car that would win the World Championship) twice, and third-place Lorenzo Bandini (in a second Ferrari) once.

Although the course dried out toward the end of the race, luck didn't shine on Rindt. As he neared the finish, his pace was slowed by differential maladies. With four laps to go, Surtees roared past, leaving Rindt to finish a disappointed second after one of the most stirring drives in all Grand Prix history.

In many respects, this epic performance was emblematic of Rindt's regrettably brief career. All too often stuck in uncompetitive and unreliable cars, he didn't win a Grand Prix until his 50th start in over six years. And then, less than a year after his maiden victory, the oh-so-fast but ever-so-unlucky Rindt was dead, killed in a practice accident at Monza. Now, to a new generation of racing fans, he's little more than a catchphrase: the only posthumous World Driver's Championship.

But to those who raced against or watched him, memories of Jochen Rindt remain strong. In their mind's eye, they see him hurling his cars through corners at outrageous angles, dirt-tracking not merely around hairpins where it's difficult to get into serious trouble, but also doing his high-wire act at Burneville, Woodcote, and the other nearly flat-out corners that best tested the mettle of drivers of the day. Whatever the car and wherever the track, oversteer was his signature.

"He was incredibly fast," says

Emerson Fittipaldi, who got to know him during his first Formula One test session for Lotus. "After about 10 laps, I came in and told Colin (Chapman) the car was understeering. Jochen was standing there, listening to my comments, and he said, 'Emerson, there's an easy way to get rid of the understeer. You just use more throttle.'"

In Formula Two, he beat anybody and everybody. In Formula One, he was as fast as his cars allowed him to be. When he finally landed a ride in a car worthy of his talents, namely the Lotus 72, he proved himself to be as fast as any driver of his era. And perhaps any era. "He was a truly gifted driving talent, a real virtuoso at the wheel," says Dan Gurney, who raced against him and later hired him to drive his Eagle at Indianapolis. "He was probably in the same league as Jimmy Clark."

BORN ON April 18, 1942, in Germany, Rindt lost his parents in an air raid when he was an infant, and he was raised by his grandparents in Austria. Although his expression tended to be dour, he was a rambunctious youth, and his flat boxer's nose hinted correctly at spirits that bordered on being pugnacious both inside and out of a race car.

Like most of the most-gifted drivers, Rindt excelled from the moment he began racing. His early successes came in a hill-climbing Giulietta. When he turned 21, he bought a year-old Formula Junior Cooper and immediately put it on the pole at Vallelunga. The next time out, at Cesenatico, he curdled the cream of the Italian Formula Junior crop by winning going away.

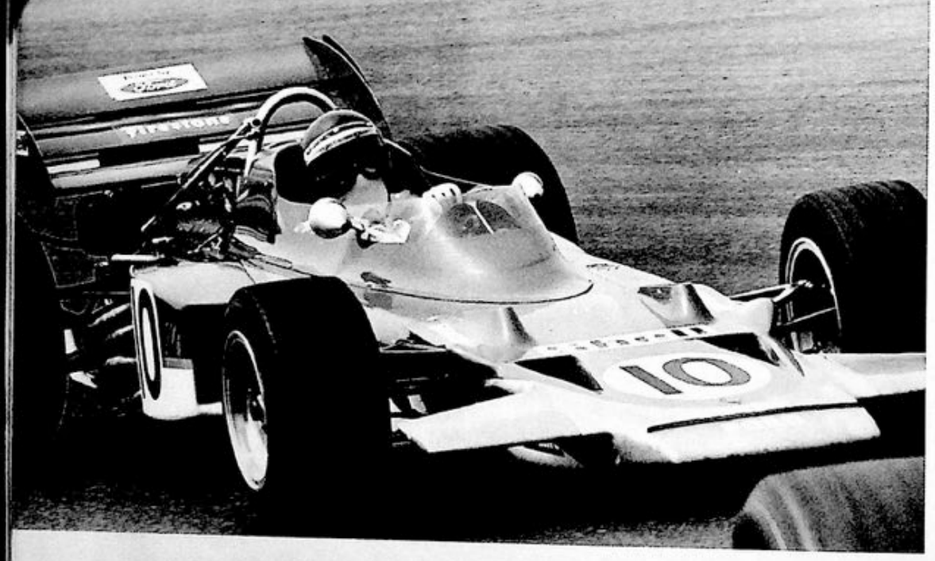
By 1964, Rindt had decided that he was ready for Formula Two. With the proceeds of the sale of a spice mill he'd inherited, he bought a new Brabham and posted a trio of strong placings on the continent. Then he traveled to England for the Whitsun weekend races that were to cement his reputation as a star on the rise. Unfamiliar with the track, Rindt asked Denny Hulme to show him around Mallory Park. After Hulme complied, Rindt qualified on the pole, then finished third to the works Lotuses after stalling on the grid. The next day, at Crystal Palace, Rindt was even more impressive. Rindt's friend and biographer Heinz Pruller tells a story about Graham Hill asking his mechanics, "Who is the boy alongside me on the front row?"

"Jochen Rindt of Austria," they told him.

"Never heard of him," Hill replied. "Is he a skier?" A few hours later, Rindt beat Hill to win the race.

Afterward, Rindt had no trouble filling his dance card. He got his feet wet in Formula One with a one-shot ride for Rob Walker at the Austrian Grand Prix in 1964, and later signed a three-year deal with Cooper. He did a pair of Indys for Gurney, calmly offering the ambulance driver a cigarette after a crash-and-burn escapade caused by a sticking throttle. Although he didn't enjoy endurance racing, he agreed to drive an underpowered, year-old, privately entered Ferrari 250LM at LeMans in 1965.

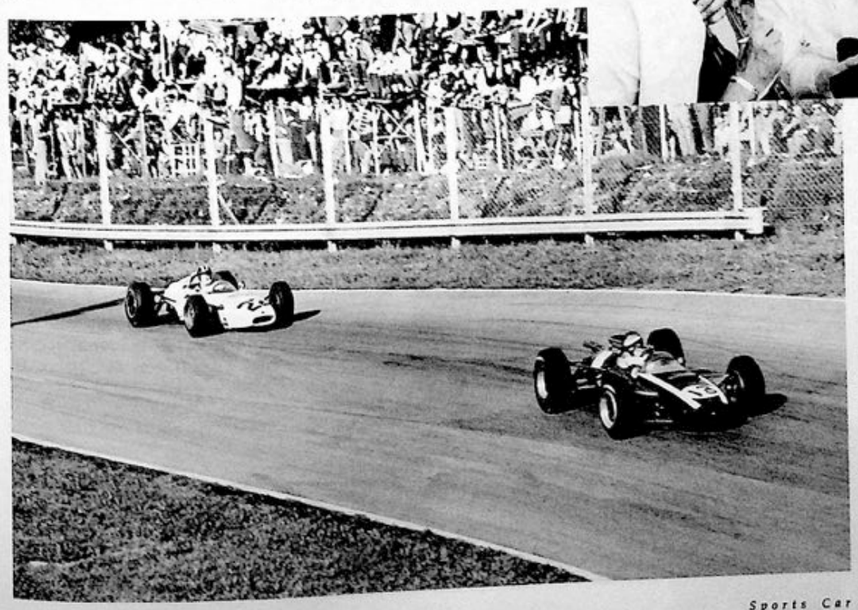
After losing dozens of laps with what was belatedly diagnosed as a faulty condenser, Rindt — who was getting ready to leave the track — agreed to persevere only if he and co-driver Masten Gregory ran flat-out to the flag. Each time they stopped to refuel, the spy needle on the tach, redlined at 7,700 rpm, registered at least 9,000 rpm. Against all odds, the car hung together long enough for them to win the so-called 24 Hour Grand Prix of LeMans by 54 miles.



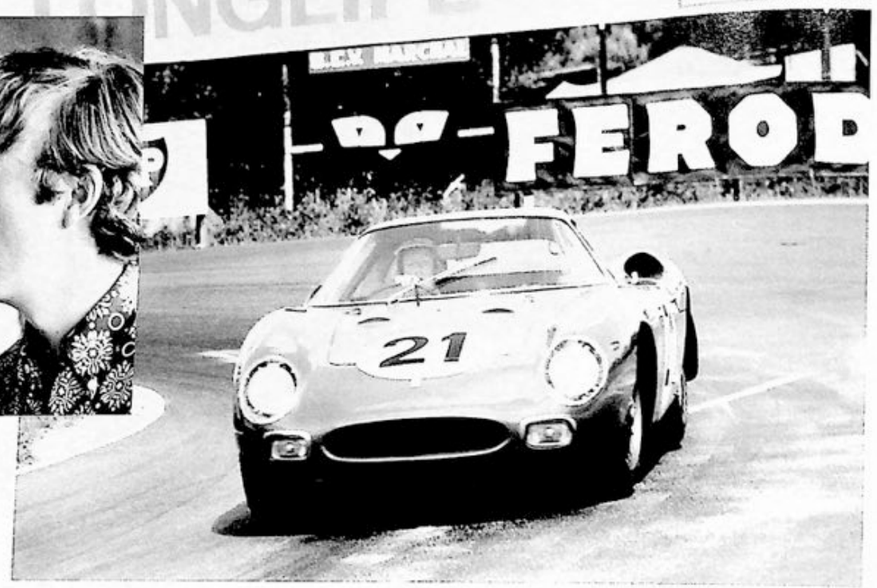
OFTEN UNCOMMUNICATIVE, even arrogant, with strangers, Rindt nevertheless established himself as a people's champion during the mid-sixties. Fans loved his flamboyant driving style and his never-say-die attitude. Like the Petersons and the Villeneuves who were to follow in his tracks, Rindt was a driver who was cheered by crowds everywhere. Ironically, he wasn't nearly as popular with the media. His standoffishness, mild by current standards, was uncommon during the sixties. His business interests — he ran a successful international auto show — were also unusual for the era, and many writers disparaged him as mercenary. Some of them used to joke that the first English phrase he learned was "starting money."

"In Formula Two, he beat anybody and everybody. In Formula One, he was as fast as his cars allowed him to be. When he finally landed a ride in a car worthy of his talents, namely the Lotus 72, he proved himself to be as fast as any driver of his era. And perhaps any era"

Opening pages: Rindt and American Masten Gregory won the so-called 24-Hour Grand Prix of LeMans in a Ferrari 250LM. The drivers agreed to race the car as if they were in a Grnad Prix; miraculously, it held together. Opposite page: Championship season, 1970. Dutch GP in the new Lotus 72.



This page, clockwise from left: Rindt was the "King of Formula Two." Here his Cooper Climax leads the Honda of Jack Brabham; Rindt with Colin Chapman, 1970, days before his fatal accident; Mexico, 1966. Rindt leads teammate John Surtees in Cooper-Maserati; Reims, 1966. Cooper-Maserati team. Manager Roy Salvadori, Chris Amon, and Rindt;



This page, clockwise from left: Spanish GP, 1969. Lotus 49C. The year of wings; Rindt with his wife Nina, 1969; LeMans 1965, Ferrari 250LM; Rindt and Gregory on the victory stand, LeMans, 1965. Opposite: Dutch GP, 1970.

But what seemed to rankle journalists most of all was that Rindt didn't share their love for the lore and romance and conventions of the sport. "I'm sure he never read any books about racing," says Herbie Blash, Rindt's mechanic in 1969-70 and now team director of Brabham. "Jochen wasn't interested in setting records. He wasn't interested in testing. He wasn't interested in the bullshit. He wasn't a politician. He wasn't a superstar. He was just a driver. That was all he was interested in."

In Formula Two, there was nobody he couldn't best — not Clark at the height of his powers, not Stewart at his most competitive, not Brabham in his "unbeatable" Honda-powered machines. Rindt amassed 29 wins between 1964 and 1970, and earned the title "The King of Formula Two."

Yet when his critics used this sobriquet, they seemed to be damning Rindt with faint praise, as if to say that he was too mercurial to succeed on the larger stage of Formula One. Certainly some of his early Grand Prix years were disappointing. His first season, in 1965, was little more than a learning experience in outclassed Cooper-Climaxes. Although the next brought him a third-place finish in the World Championship, his Cooper-Maser was increasingly outdated, and 1967 was virtually a write-off.

For 1968, Rindt moved to Brabham, which was coming off back-to-back championships. The car was quick — Rindt sat on the pole twice — but the four-cam Repco engine was woefully overstressed, and he finished only two of 12 races. Rindt switched to Lotus in 1969, and suffered further frustration. Of the 10 races he contested, he qualified on the pole five times, on the front row eight times and led six times, yet his Lotus 49C repeatedly broke underneath him, or the high-mounted wings broke over him.

Rindt's finest performance came at Silverstone during the British Grand Prix, where he outdueled Stewart for most of the race before being forced to pit with a collapsing rear wing. How Rindt managed to keep his car both on the road and ahead of Stewart's clearly quicker Matra remains a matter of conjecture. "To see Jochen going 170 mph, sideways into a corner..." Blash says, shaking his head, still amazed after all these years.

AFTER LOSING at Monza by a heartbreaking eight-thousandths of a second, Rindt finally scored his first Grand Prix victory at Watkins Glen near the end of the year. Encouraged by this overdue win and the promise of the Lotus 72, he chose to remain with Lotus in 1970 despite his antipathy for Colin Chapman. As it transpired, the Lotus 72 was beset by teething woes, and an unhappy Rindt opened the season in the obsolete Lotus 49C. He failed to finish either of the first two races of the year, and could do no better than qualify midfield at Monaco.

For the first half of the race, he was plainly disinterested, content to trail behind a driver as pedestrian as Henri Pescarolo. But then a combination of attrition at the front of the field and pressure from behind inspired him to hasten. With 15 laps to go, 15 seconds behind Jack Brabham, Rindt began tossing his old Lotus around as if it were a small sailboat in high winds. Inexorably, the gap shrank as Brabham was inadvertantly baulked by backmarkers and Rindt was simply unbelievable.

As they approached the final corner of the final lap, Rindt closed to within 20 yards of Brabham. Unnerved by the pressure, the normally unflappable Brabham locked up his brakes and slid into the hay bales. Rindt slipped past to win one of the most thrilling finishes in Grand Prix history while clocking the fastest lap of the race — 1:23.2, fast enough to have put him on the pole the next year, and an incredible 2.7 seconds faster than his qualifying time. As Blash says, "He was in a class of his own that day."

After Monaco, Rindt committed himself to the Lotus 72, and drove it to its maiden victory at Zandvoort after qualifying on the pole. He won again in France when Beltoise's Matra and Ickx's Ferrari both broke; in England when Brabham ran out of fuel on the last lap; and in Germany, where he beat Ickx by less than a second. Four Grands Prix. Four consecutive wins. After all those years of misfortune, his luck seemed to have changed. And then he went to Monza.

DURING PRACTICE Saturday, on the approach to Parabolica, Rindt's car lifted slightly during braking and then turned sharply into the Armco barrier at 150 mph. The cause of the accident was obviously mechanical, with most speculation centering on a broken brake shaft. The front of the car disintegrated and Rindt, who refused to wear crotch belts, submarined into the cockpit and suffered mortal leg, neck, and chest injuries.

There were still four races left in the season, and several drivers theoretically could exceed Rindt's points total to win the World Championship. But the idea of living drivers competing against a dead one was even more macabre than the prospect of a posthumous World Champion, so it came as a relief to virtually everybody involved when the young Fittipaldi, then driving in his fourth Formula One race, unexpectedly won the US Grand Prix in a Lotus 72 and preserved the title for his late team leader.

Rindt didn't win enough races over a long enough period to be considered among the all-time greats. Yet when Blash is asked whether he'd prefer to have Rindt or arch-rival Stewart driving for him, he chooses Jochen. "He was the quickest," he explains. "He wasn't technical at all. He didn't know anything about the way the car worked. He was just a guy who would literally turn up, jump in the car, and give it 100 percent, and he was either first, second, third or he didn't finish. And you can't ask for much more than that, can you?" SCI

"Jochen wasn't interested in setting records. He wasn't interested in testing. He wasn't interested in the bullshit. He wasn't a politician. He wasn't a superstar. He was just a driver. That was all he was interested in"

TRACK TEST: ALFA ROMEO 164 L

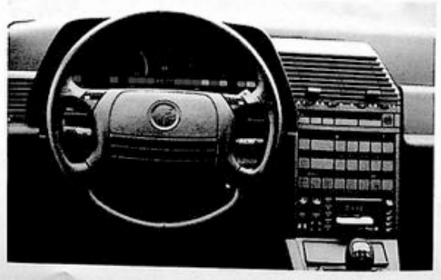
To date, Alfa Romeo has not had much of a presence in the US market. Its current model line-up consists of only two cars: the Spider and the Milano. The Spider, which remains in the program, was once a bonafide sports car, but carries ancient technology and is now well past retirement age. For 1991, Alfa has set its sights on the expanding luxury sedan market by bringing its 164 model to replace the Milano as the firm's four door offering in the US. Alfa will make the 164 available in three levels: the base 164, the 164 L with more standard features including ABS, and the 164 S, with a more powerful engine. It's unlikely that any but the most die-hard Alfisti will mourn the passing of the quirky Milano. Any car with window push buttons on the headliner and styling that looks like the result of a rear crash test won't get far with the tire kickers — and the odd-looking Milano didn't.

By Peter Albrecht
Photography by David Gooley

The new Alfa is built on a platform shared with the Fiat Croma, Lancia Thema, and Saab 9000. All four firms collaborated on the basic package, and all four share the overall layout and some components, but then each went its own way in suspension, drivetrain, and styling.

The 164 is a distinct improvement over the Milano. The styling was done by Pininfarina, and if there is one thing the Italians can do well, it's styling. The Alfa 164's flowing lines show the hand of the master.

Styling is one thing; ergonomics quite another. In this department, the Alfa lacks the ergonomic brilliance of competing Japanese and German offerings. Inside, switches and controls make an integrated design statement, but present a needlessly complex array of choices. The feel of minor switches, too, doesn't equal that of other cars in this class. The steering wheel is adjustable in reach, but not rake, and the chintzy locking lever is buried far under the dash kick panel and can't be reached from a normal sitting position. The steering wheel is mounted at too flat an angle, condemning the driver to the Italian driving position. In case you're wondering how the Italians can stand it, the answer is that they don't have to. Italians never drive with their hands at 9 and 3 o'clock. Their hands are always around the bottom of the wheel, when not moving around rapidly as an aid to conversation. The car's interior plastic, too, is not up to the standard one expects in this class of car. The vent controls, for example, just feel cheap.



The door opens wide for easy access. The seat is adjustable for height, but the front and rear of the cushions are not adjustable independently. The cushion has plenty of lateral support at the rear, but little at the front, giving the feel that one is sitting on a well-padded coal shovel.

While the Italian artsy types are proud of their design sense, Italian engine men share a similar distinction. Engines have been an Italian art since the early days of motoring, and against such a history, the 164 engine does not disappoint. Visually, it's a beautiful piece of work, accentuated by bright intake runners. This powerplant is also a carryover from the Milano, but has been much modified. Longer intake runners provide a flatter torque curve. The base, 164 L, and 164 S engines have nearly identical torque numbers, but the S gets 200 horsepower thanks to different cams and low back pressure exhaust. The classic configuration of a 3.0 liter 60 degree V6 provides smooth, exemplary power. Its good low-end torque results in excellent performance around town, something many imports lack. As a front driver, though, the precision steering feel is marred by some torque steer when the power is used to its fullest. Other high-powered front drivers, such as the Taurus SHO and Pontiac Grand Prix Turbo, have tamed this old vice.

We had opportunity to test two different 164s, both manual-equipped L models. We were also scheduled to test the more powerful S model, but other testers beat the transmission to death before our turn came up. Drag strip numbers on the S are probably academic, anyway. We expect that the 0-60 times of both cars will be similar; the 164 S has the same gearing and only 4.0 lbs. ft. more torque. Quarter mile times should benefit slightly from its 200 horsepower, though.

The 164 L went to 60 mph in 7.57 seconds, comparable to the Taurus SHO and quicker than the BMW 535i. The quarter mile mark came up in 15.95 sec. at 89.9 mph. Engine flexibility numbers show the flat torque curve of this engine: 30-50 and 50-70 mph times in the top gears are nearly identical.

In braking, the ABS-assisted 164 L stopped in 124 feet from 60 mph and 234 ft. from 80, both good values for this class of car. Both cars, ABS and non-ABS, had good brake pedal modulation.

We did notice a strange sound at standstill and low speeds, like a Huey helicopter hovering over the car. That annoying thump, thump, thump sounded like the opening scene of *Apocalypse Now*. We never did find the source, as it didn't seem to be coming from the engine or ventilation and was drowned out at higher speeds.

Phantom Huey notwithstanding, the 164 is a quiet cruiser on the freeway, a tribute to Pininfarina's shape and the aerodynamic development. Eighty mph feels like 60 or 65 in other cars. The suspension is not upset even on known freeway hop sections.

The Alfa Romeo 164 is up against formidable, established competitors such as the BMW 525, Audi 100, Saab 9000, Taurus SHO, and Acura Legend. General Motors will soon have a package to compete in this segment. The Alfa has an excellent engine and well-styled body, but in light of the strong competition, Alfa's thin dealer network, and its lower than average build and design quality in several areas, the 164 will have an uphill battle in the marketplace. SCI

Vehicle: Alfa Romeo 164 L

GENERAL DATA
Vehicle Type: Transverse front engine, front-wheel drive, five passenger, four door sedan
Body/chassis: unit steel construction, partially galvanized

PRICES
Base price, 164 L: $27,500
Available options: automatic trans, $650; power leather seats, $1,200; heated seats f/r, $350; anti-theft system, $ 250

ENGINE
Configuration: transverse, 60 degree V6, aluminum block, cast iron wet liners, aluminum head
Boro x stroke: 93.0 x 72.6 mm
Displacement: 2,959cc
Compression: 9.5
Power output: 183 bhp @ 5,800 rpm
Torque: 189 lbs. ft. @ 4,400 rpm
Redline: 6,350 rev limiter, 6,500 tach redline
Fuel delivery: Bosch Motronic fuel injection/ignition
Fuel requirement: unleaded, premium
Valve train: 2 valves/cyl., belt-driven single overhead cams, sodium-filled exhaust valves

TRANSMISSION
5-speed manual

Gear	Ratio	Speed
1st:	3.55	40
2nd:	2.24	64
3rd:	1.52	96
4th:	1.13	129
5th:	0.92	135-140

Final drive: 3.11

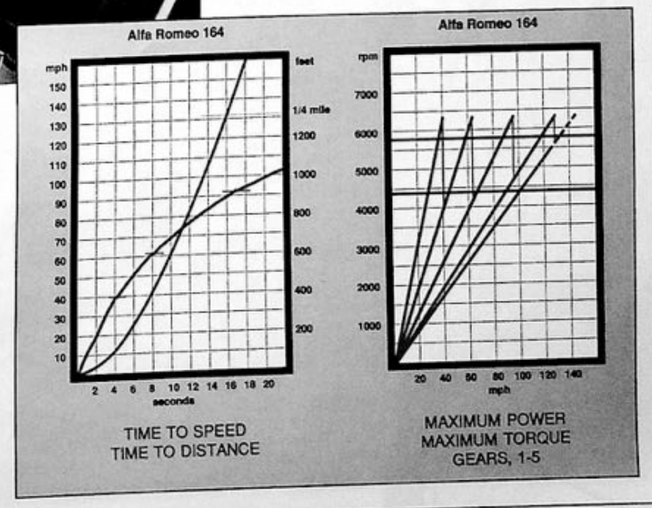
DIMENSIONS AND CAPACITIES
Curb weight: 3,325
Weight distribution, f/r: 60/40
Wheelbase: 104.7
Track, f/r: 59.6/58.6 in.
Length: 179.4 in.
Width overall: 69.3 in.
Height: 54.8 in.
Ground clearance: 6.2 in.
Luggage capacity: 17.8 cu. ft.
Fuel capacity: 17.2 US gal.

STEERING/SUSPENSION/BRAKES
Steering type: rack and pinion, power assisted, engine speed sensitive
Turns lock-to-lock: 3.2
Turning circle: 35.4 ft.
Front suspension: MacPherson struts, lower wishbones, coil springs, tube shocks, anti-roll bar
Rear suspension: Chapman struts, double transverse links, trailing link, coil springs, tube shocks, anti-roll bar
Wheels: cast alloy, 6 x 15
Tires: 195/65VR-15 Goodyear NCT2
Brakes: f: 11.1 in. vented discs w/ ABS, r: 9.8 in. discs w/ABS

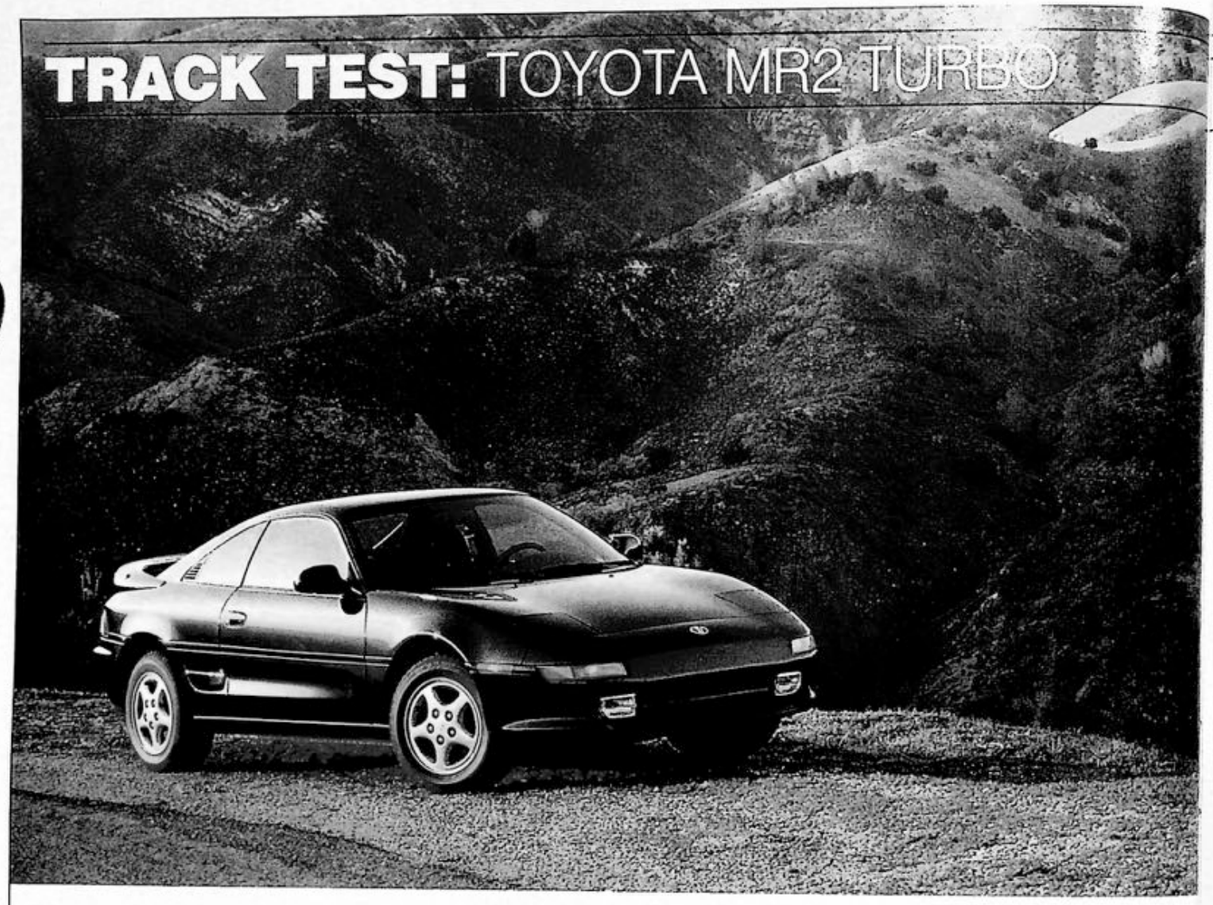
PERFORMANCE
0-60 mph: 7.57 sec.
0-100 mph: 20.44 sec.
1/4 mile: 15.95 sec. @ 89.9 mph
Skidpad: 0.80 g
Braking from 60: 124 ft.
Braking from 80: 234 ft.

Engine elasticity (time, seconds)

Gear	30-50	50-70
3rd:	5.3	5.1
4th:	8.0	8.0
5th:	10.6	11.3

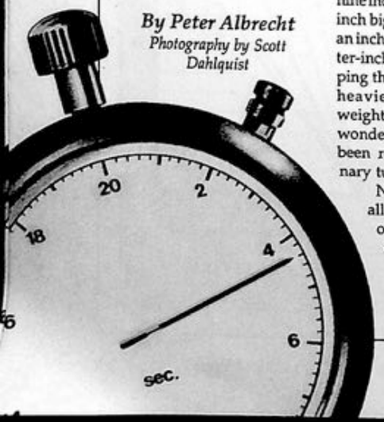


TRACK TEST: TOYOTA MR2 TURBO



Ever since the first spy photos of the second-generation MR2 started circulating, the word went around the sports car community that the new MR2 would be completely different in concept from the beloved old Mister Two. Now that the 1991 MR2s are in the press fleet and we've run our test, we have some good news and we have some bad news.

By Peter Albrecht
Photography by Scott Dahlquist

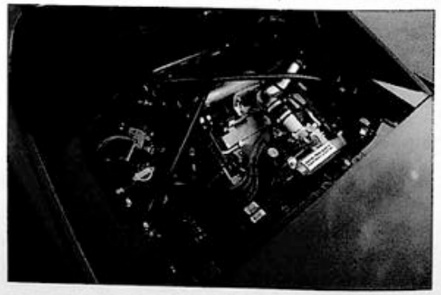


First the bad news: the new car is indeed bigger and heavier than the old MR2. Toyota even uses the classic Detroit "longer, lower, wider" pitch. The new car is nine inches longer on a three-inch bigger wheelbase, over an inch wider, barely a quarter-inch higher, and a whopping three hundred pounds heavier. Road hugging weight, maybe? And that wonderful supercharger has been replaced by an ordinary turbo.

Now the good news: all that doesn't matter one bit. The 1991 MR2 is in every way a better car than the arrest-me-red Supercharged MR2 that we enjoyed so much during its one-year stay in our long-term fleet. The new car retains every bit of that fighter-plane feel we liked so much in the old MR2, but with considerable refinement and (I think) better styling.

Inside, the MR2 has functional, no-nonsense sports car styling. None of that fooling around with "organic shapes" that excite the styling guys. It's all functional, from the height-adjustable leather-covered steering wheel, with good hand grips and an airbag, to the excellent seating position. The seats have good thigh and back support, firm side bolstering, and long lower cushions whose fronts can be adjusted for height. There is enough fore and aft adjustment even for long-legged drivers, something we can't say of many four seat cars. Outside visibility is good, aided by the slim C-pillar and large rear quarter windows. The base six-speaker radio is only so-so, and we'd opt for the top-end cassette CD combo, which adds another woofer.

Engine size takes a big jump for 1991. Like the 1.6 it replaces, the all-new normally aspirated 2.2 liter has all the modern stuff — double overhead cams, 16 valves, and it's good for 130 horsepower, 15 more than the old engine. But enthusiasts will be more interested in the 2.0 liter turbo. Its 200 horsepower far exceeds the old supercharged car's 145 ponies.



Toyota seemed to be at the forefront of supercharger development. Why then the sudden switch from a blower to a turbo? The new MR2 needed more power than the old 1.6 engine could reasonably be expected to provide. Most of the required development work had already been done for the Celica Turbo's 2.0 liter motor, and with minor modifications, that's what winds up in the MR2's tidy engine bay.

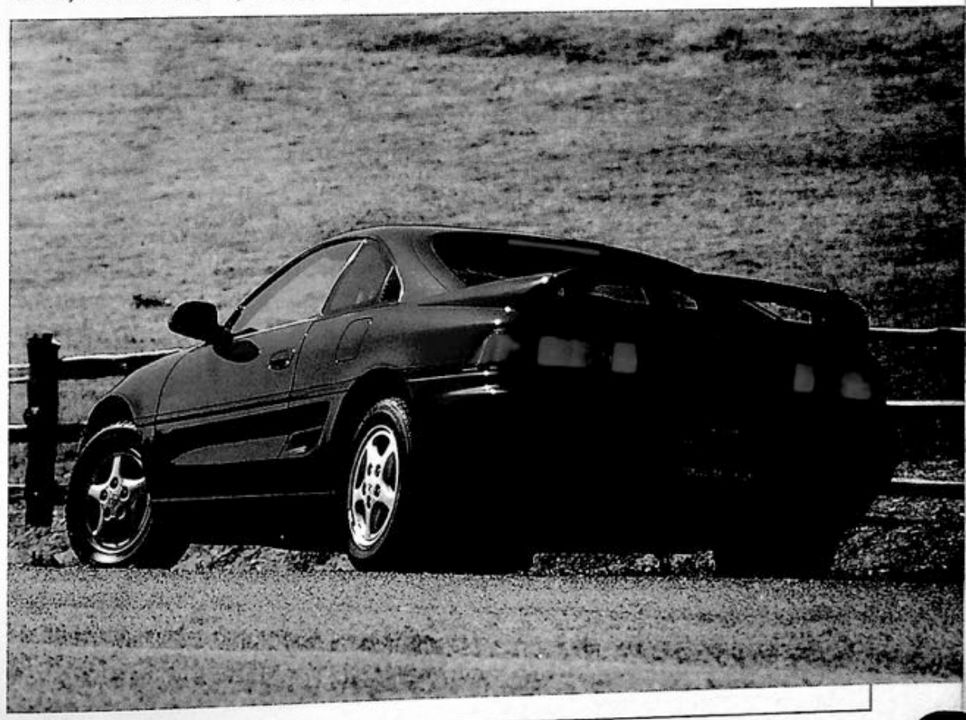
That new motor is hidden. What's not concealed is the body. It just about screams "Bambino Ferrari." Overall, the MR2 has the driver-forward layout of the 308 GT4 of the early seventies. Its surface, though, is much more rounded. The front fenders are reminiscent of the 512 Berlinetta Boxer. Like so many cars today, the sides have air intakes forward of the rear wheels, a styling idiom made popular by the Testarossa. Unlike most wannabe Ferraris on the road, though, the intakes on the MR2 actually lead to a mid rear-mounted engine. Finally, the rear glass is curved like that of the 246 Dino and Testarossa. Where other two-seaters have annoying night-time reflections from the rear window, the MR2 (and TR) handle it well. Now I'm not saying the MR2 is a blatant copy of Ferrari design ethics. But, hey, if the body writes checks that the motor can cover, who cares?

And the MR2 Turbo's powertrain will cover those checks. In the December 1988 issue, we tested a duo of supercharged MR2s, one stock, one modified by TRD, Inc. Both went 0 to 60 in 7.21 seconds. The TRD car went through the quarter in 15.49 at 88 mph, while the stock car went 15.66 at 88 mph. Our test 1991 MR2 Turbo easily beat all those numbers. We saw 60 mph in nearly a second less, in 6.23. The quarter mile came a second sooner and 5.0 mph faster than the stock Super MR2, at 14.65 and 93.3 mph.

The factory claims the car will reach 60 just a shade quicker, in 5.96 seconds, and we believe them. We had only a limited time to work into the car at the Pomona drag strip before nightfall. For that same reason, we weren't able to get hard skidpad data; we kept losing our way on the pad. We turned better times the next day, at our High Desert top speed site, thanks to familiarity with the car. (Last year's Super MR2 had an easier learning curve.) In the cooler Pomona evening air, at lower altitude, the car would certainly have been quicker and might have beaten the factory claim.

We shifted at 7,000 in first, but 6,500 for all the other gears. The more powerful motor more than makes up for the increased weight. The torque curve peaks at a low (especially for a tiny turbo) 3,200 rpm, but stays relatively flat to about 6,000 rpm, where it rolls off quickly. Boost comes on rapidly at 1,800 rpm, and is full in by 3,000. The engine will pull from 1,000 rpm, but is not really happy until it gets to 1,500 or 1,600. This is reflected in the engine flexibility numbers. Third gear shows how flat the torque curve is when revs are above 2,000; in fourth and fifth, the car starts out at very low revs with no boost. Top speed was 141 mph. The car bounced around quite a bit on the choppy desert top-speed course.

At more socially acceptable speeds on decent roads, though, the MR2 is a great cruiser. Although it is stiffly sprung, with very little roll or pitch, it isn't uncomfortable. The infamous California Freeway Hop is not objectionable. There is a subtle siren-like howl when you tip into the boost that will have you checking your mirrors for a pursuing police cruiser. And although there is a joyful noise from that engine sitting just behind the cockpit, the car is otherwise quiet on the freeway. There is little or no wind noise. Toyota claims the car was in wind tunnel and driving development

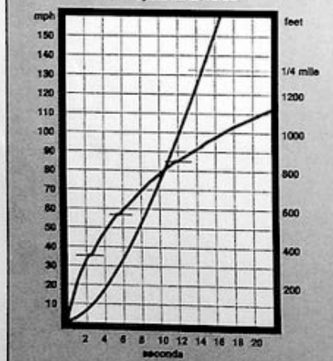


five times longer than usual, and it shows.

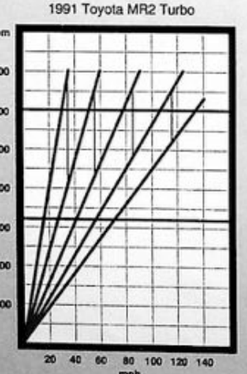
Although we didn't get hard numbers, our time on the pitch-dark skidpad showed how easily the car can be steered with the throttle in the best mid- and rear-engine tradition. Backing off brings the tail out smoothly, to be caught by a flick of opposite lock. We would estimate skidpad numbers at 0.85-0.88 g. Our test car did not have the optional power steering. The non-assisted rack and pinion set-up felt just fine for the rest of us.

Our test car also did not have the optional (and recommended) ABS brake set-up, yet turned in commendably short stops of 126 and 218 feet, beating the old non-ABS record set by the Camaro/Firebird. Brake modulation is excellent, telling the driver what the brakes are doing even in this non-ABS form.

We are living now in a new golden age of sports cars. Among those future classics, the MR2 Turbo is one of the best sports cars we've ever driven, regardless of price. You'll need to spend a lot more to go just a little quicker; the only other mid-engine cars sold here are the Lotus Esprit, Lamborghini, and the Ferraris. And no matter what you spend, it's hard to imagine anything else delivering more pure driving fun. The MR2 Turbo is the legitimate heir to the promise that was the Fiat X1/9, the Lancia Scorpion, and the Pontiac Fiero. It is what the Scorpion might have been had Fiat/Lancia kept up with world-wide progress; it is what the Fiero should have been had the beancounters been kept away. The MR2 is the Ferrari for Everyman. SCI



TIME TO SPEED
TIME TO DISTANCE



MAXIMUM POWER
MAXIMUM TORQUE
GEARS, 1-5

Vehicle: Toyota MR2 Turbo

GENERAL DATA
Vehicle Type: rear mid-engine, rear-wheel drive, two passenger, two door coupe
Body/chassis: unit steel construction

PRICES
Base price: $18,228
Available options: ABS brakes, $1,130; power steering, $600; power windows & doors, $405; cruise control, $245; leather trim pkg. $1,690; sunroof, $380; t-bar roof, $900; air conditioning, $825; Am/FM/Cassette, $340; AM/FM/Cassette/CD, $1,040

ENGINE
Configuration: transverse-mounted turbocharged, intercooled inline four, iron block, aluminum head
Bore x stroke: 86.0 x 86.0 mm
Displacement: 1,998 cc
Compression: 8.8
Power output: 200 bhp @ 6,000 rpm
Torque: 200 lbs. ft. @ 3,200 rpm
Redline: 7,000 rpm
Fuel delivery: electronic fuel injection
Fuel requirement: unleaded, premium
Valve train: 4 valves/cyl., belt-driven double overhead cam

TRANSMISSION
Type: 5-speed manual

Gear	Ratio	Speed
1st:	3.230	36
2nd:	1.913	60
3rd:	1.258	91
4th:	0.918	125
5th:	0.731	141

Final drive: 4.285

DIMENSIONS AND CAPACITIES
Curb weight: 2,758
Weight distribution, f/r: 42/58
Wheelbase: 94.5
Track, front & rear: 57.9/57.1 in.
Length: 164.2 in.
Width overall: 66.9 in.
Height: 48.8 in.
Ground clearance: 5.3 in.
Luggage capacity: 1.0 cu. ft. front, 5.5 cu. ft. rear
Fuel capacity: 14.3 US gal.
EPA fuel economy, city/hwy: 20/27 mpg

STEERING/SUSPENSION/BRAKES
Steering type: rack and pinion, optional power assisted, electric pump
Turns lock-to-lock: 3.7 (optional 3.3)
Turning circle: 32.2 ft.
Front suspension: MacPherson struts, offset coil springs, gas pressure shocks, 16.5mm anti-roll bar (17mm with power steering)
Rear suspension: Chapman struts, off-set coil springs, gas pressure shocks, 18mm anti-roll bar
Wheels: cast alloy; F: 6 x 14, R: r: 7 x 14
Tires: Bridgestone RE71; F: 195/60VR-14, R: 205/60VR-14
Brakes: F: 10.1 in. vented discs; R: 10.3 in. vented discs

PERFORMANCE
0-60: 6.23 sec.
0-100: 16.92 sec.
1/4 mile: 14.65 sec. at 93.3 mph
Top speed: 141 mph @ 6,300 rpm
Braking from 60: 126 ft.
Braking from 80: 218 ft.

Engine elasticity (time, seconds)

Gear	30-50	50-70
3rd	3.6	3.6
4th	5.8	4.8
5th	8.7	6.4

All road test data obtained with Datron CORREVIT non-contact test equipment

TRACK TEST: SUMMARY

Car Name	Issue	0-60	1/4 mi. @ mph	Top speed	Braking 80-0 ft.	Lateral Accel. (g)	hp @ rpm	torque @ rpm	Price ($)
Alfa Romeo 164 L	6/90	7.57	15.95 @ 89.9	N/A	234	0.80	183 @ 5800	189 @ 4400	27,500
Audi V8	11/89	9.13	16.95 @ 87.70	141	237	0.77	240 @ 5800	245 @ 4000	47,450
Audi Coupe Quattro	5/90	8.72	16.62 @ 84.0	132	229	0.82	162 @ 6000	157 @ 4500	29,750
BMW 535i	6/89	8.16	16.27 @ 89.60	139	218	0.82	208 @ 5700	225 @ 4000	43,600
BMW M3	1/90	7.38	15.65 @ 90.80	139	244	0.81	192 @ 6750	170 @ 4750	34,950
Chevrolet Camaro 1LE	9/89	6.50	14.97 @ 95.40	139	235	0.89	230 @ 4600	300 @ 3200	14,145
Chevrolet Corvette L88	6/89	5.78	14.26 @ 100.20	142	223	0.89	245 @ 4300	340 @ 3200	31,545
ZR-1 Corvette	4/90	4.80	13.28 @ 109.8	170	205	0.89	375 @ 5800	370 @ 4800	58,995
Callaway Corvette	4/90	4.79	13.11 @ 112.0	172	212	0.90	390 @ 4250	562 @ 2500	58540
Eagle Talon TSi AWD	7/89	6.79	15.10 @ 90.30	134	249	0.79	195 @ 6000	203 @ 3000	16,000
Ferrari Testarossa	12/89	5.50	13.84 @ 103.30	166	237	0.92	380 @ 5750	354 @ 4500	144,500
Ford Mustang LX	3/90	6.05	14.62 @ 96.7	136	277	0.83	225 @ 4200	300 @ 3200	13,007
Ford Probe GT	10/89	7.27	15.74 @ 90.00	130	241	0.83	145 @ 4300	190 @ 3500	14,367
Ford Taurus SHO	11/89	7.44	15.89 @ 91.80	133	276	0.82	220 @ 6200	200 @ 4800	20,189
Ford Thunderbird	4/90	6.63	15.07 @92.9	138	249	0.84	210 @ 4000	315 @ 2600	20,390
Infiniti Q45	3/90	6.85	15.24 @ 94.7	149	224	0.80	278 @ 6000	292 @ 4000	37,500
Lamborghini LM002	11/89	9.74	17.31 @ 79.80	120	292	0.72	455 @ 7000	368 @ 5000	126,000
Lexus LS400	10/89	8.72	16.64 @ 87.70	146	242	0.75	250 @ 5600	260 @ 4400	35,000
Lotus Turbo Esprit SE	12/89	5.08	13.80 @ 100.80	159	231	0.84	264 @ 6500	261 @ 3900	79,500
Mazda Miata	8/89	8.82	16.76 @ 81.80	113	232	0.88	116 @ 6500	100 @ 5500	13,800
Mazda MX-6 GT	6/89	8.50	16.40 @ 85.40	129	251	0.79	145 @ 4300	190 @ 3500	15,499
Mazda RX-7 GTUS	8/89	7.83	16.08 @ 87.50	125	245	0.86	160 @ 7000	140 @ 4000	19,600
Mazda RX-7 Turbo	8/89	5.95	14.53 @ 87.50	140	216	0.85	200 @ 6500	196 @ 3500	25,950
M-B 300 SL 3.0-24	4/90	8.19	16.28 @ 88.5	145	234	0.84	228 @ 6300	201 @ 4600	72,500
M-B 300SL (1957)	2/90	8.06	16.43 @ 87.10	127	N/A	N/A	240 @ 6100	217 @ 4800	$10,970
Nissan 240 SX	6/89	8.83	16.70 @ 84.00	108	267	0.82	140 @ 5600	152 @ 4400	13,249
Nissan 300 ZX	10/89	7.30	15.73 @ 90.20	134	214	0.87	222 @ 6400	198 @ 4800	27,560
300 ZX Turbo	3/90	5.35	13.90 @ 105.3	157	243	0.90	300 @ 6400	283 @ 3600	33,000
Pontiac Formula Firebird	8/89	6.43	15.00 @ 94.00	134	233	0.90	215 @ 4400	285 @ 3200	13,949
Pontiac Grand Prix	1/90	7.86	16.15 @ 86.20	122	233	N/A	205 @ 4800	220 @ 3200	23,345
Porsche 911 Carrera 2	2/90	5.13	13.74 @ 103.60	159	N/A	N/A	247 @ 6100	228 @ 4800	58,500
Porsche 911 Carerra 4	12/89	4.93	13.52 @ 101.90	157	224	N/A	247 @ 6100	228 @ 4800	70,065
Porsche 944 S2	12/89	6.37	14.94 @ 94.20	146	224	0.86	208 @ 5800	207 @ 4100	41,900
Saab 9000 CD	9/89	7.94	16.32 @ 89.90	132	245	0.78	160 @ 5500	188 @ 3000	32,354
Shelby CSX	7/89	7.36	15.79 @ 88.50	125	261	0.82	175 @ 5200	210 @ 2400	15,663
Toyota Celica All-Trac	5/90	7.59	15.78 @ 87.7	130	245	0.83	200 @ 6000	200 @ 3200	21,008
Toyota MR@ Turbo	6/90	6.23	14.65 @ 93.3	141	218	N/A	200 @ 6000	200 @ 3200	18,228
Toyota Supra	2/90	6.73	15.25 @ 93.90	146	277	0.85	232 @ 5600	254 @ 3200	27,080
Volkswagen Corrado	1/90	9.08	16.79 @ 84.60	132	232	N/A	158 @ 5600	166 @ 4000	17,900

All Data obtained with Datron CORREVIT non-contact test equipment

AUTO-SHOWCASE

This section is provided exclusively by duPont Registry.

1966 COBRA 427 Actual miles 17,048. This Cobra is completely original. All manuals, tool kit, jack are included. Tires are Dunlop racing installed in 1967. Been in a climate controlled storage with a cover installed. Serious principals may contact David Green at 1-800-233-1731 Mon-Fri. 8:30 AM to 6 PM EST, or call 1-813-281-5656.

1973 FERRARI GTS Serial #06432. The rarest of Dinos, one of 87 U.S. models known with factory flares and black leather Daytona chairs. Optional Campagnolo wheels, A/C and PW. 13,600 miles. Includes all tools, books, and records in the original leather binder. One of the finest original Spyders around at $225,000. Contact Neil, California (408)253-7028.

1978 EXCALIBUR PHAETON Finished in Champagne over Saddle hides. This two owner Phaeton has only 18,000 South Florida miles. Must be seen to be appreciated. We transport worldwide. Contact David at Prestige Imports. N. Miami Beach, FL. 305-947-1000.

1988 LOTUS TURBO ESPRIT US MODEL Finished in Black over Tan Connolly hides. Only 10,000 miles with not a scratch or mark anywhere. Reasonably priced for speedy sale. We transport worldwide. Contact David at Prestige Imports, N. Miami Beach, FL. 305-947-1000.

1980 ROLLS-ROYCE CAMARGUE 2-DOOR COUPE DESIGNED BY PININFARINA This is a California fuel injected car and is in like-new condition. Ebony Black lacquer finish with black Connolly hides piped in red. Fully equipped, with compact disc player and 400 amp linear amplifiers. Immaculate condition throughout. CARS INTERNATIONALE LTD. 407 N. Federal Highway, Ft. Lauderdale, Fl 33301. Phone 305-463-3400. FAX 305-463-5738.

1983 BENTLEY MULSANNE TURBO Finished in Ebony Black with Magnolia Connolly hides. 28,596 original miles, runs and looks like new, fully equipped including telephone, Dayton wire wheels, stereo, etc. This exotic automobile is on display in our showroom and is sold with a written guarantee. CARS INTERNATIONALE LTD. 407 N. Federal Highway, Ft. Lauderdale, Florida 33301. Phone 305-463-3400. FAX 305-463-5738.

CORD 1937 SUPER-CHARGED PHAETON Cadmium Red, Black top with Red piping, new Black leather upholstery, new brakes, excellent tires, nearly new top, radio, heater. A proven driver, driven on extensive club caravans throughout United States and Canada. Auburn - Cord - Duesenberg Club certified original, all restoration authentic. Originally designed to be a small Duesenberg. A real beauty. $150,000. Wayne Weihermiller (509)545-5261.

1929 BENTLEY 4.5/6.5. GX-140 This car sits on a 4.5 liter saloon chassis, no. KL3600, with an open, two-seater, bobtail body. The 6.5 liter engine, serial no. KF2382, combines with a steering box from FW2609 and an 8 liter front axle to complete GX140 - adding up to the quickest prewar automobile in North America. The car was rebuilt recently to complement the authenticity of its vintage heritage. This car is completely fresh and race ready! Very expensive! Call (603) 744-8157.

For Art' Sake

THE 250LM BROUGHT FERRARI ITS FIRST SUCCESSES IN THE AGE OF MID-ENGINE RACE CARS. PICTURED IS 250LM NO. 5843, WHICH WAS REGULARLY CAMPAIGNED BY ECURIE FRANCORCHAMPS IN THE SIXTIES. IT PROUDLY WEARS THE YELLOW RACING COLOR OF BELGIUM.

PAINTING BY JAY KOKA. PUBLISHED AS A LIMITED EDITION OF 149 SIGNED AND NUMBERED LITHOGRAPHS BY JAY KOKA STUDIO, 519-746-3185

It's the all-new MR2 Turbo. And its soul is passion. The passion of a Toyota design team who view performance as the difference between cars that are made for transportation and cars that are made for driving.

If passion is the MR2 Turbo's soul, its heart is a two-liter, twin-cam, 16-valve turbocharged engine* with air-to-air intercooler that pumps out 200 horsepower. Zero to sixty is a 5.96-second flash.*

Controlling this power is an extremely rigid mid-engine chassis with independent MacPherson strut suspension. In addition to chassis rigidity, the mid-engine placement also contributes to better overall balance and a lower center of gravity.

Ventilated disc [illegible] and optional Anti-lock Brake [illegible] a stop to all of this performance.

Even the MR2's looks perform. With a .31 coefficient of drag, the MR2's styling is as slippery as it is beautiful.

On the inside, the feel of a true cockpit envelops the driver. A thickly padded steering wheel (with standard air bag Supplemental Restraint System) and short-throw gearshift fall immediately to hand. An optional seven-speaker state-of-the-art compact disc stereo system is available for those occasions when the road isn't entertainment enough. And a full complement of instruments measures the MR2's pulse and completes a package that will quicken yours.

The Toyota MR2 Turbo. Put the passion back into your driving.

THE PASSION IS BACK.

"I love what you do for me."

TOYOTA

*1991 MR2 Turbo United States Auto Club certified performance figures.
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